The Iron Age

A Review of the Hardware, Iron and Metal Trades.

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Forging Heavy Crank Shafts.

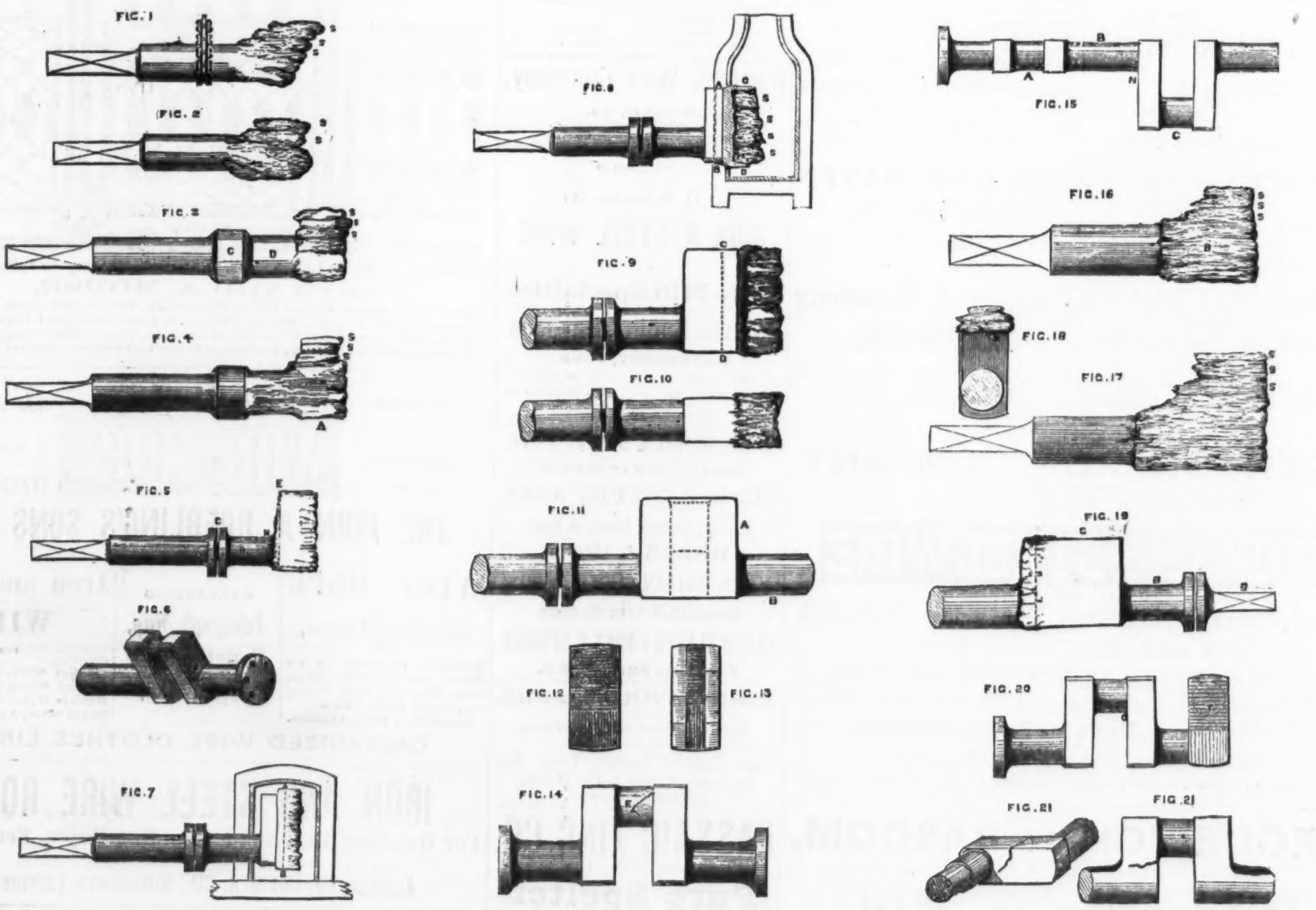
Mr. W. L. E. McLean, of the Lancefield Forge, Glasgow, read before the Institution of Mechanical Engineers the following important paper on the various methods used in Great Britain of forging crank shafts:

First Method.—The most common method is technically termed by the forgeman "finishing the piece before him." He begins with a staff or stave, as shown in Fig. 1, suspended by a chain from the crane, and made round for the convenience of manipulating under the steam hammer; this stave is used over and over again for many forgings, as it is merely the "porter" to carry the piece, and enable it to be worked. The forging is begun by two or three slabs being placed in the staves as at S S S, and then inserted in the furnace. The slabs are flat blocks made up of pieces of scrap iron which have been piled and heated and then welded together. After being brought to a welding heat in the furnace the slabs are withdrawn, placed under the steam hammer, and beat down solid. The piece is then turned upside down, and two or three similar slabs placed on the opposite side, as shown at S S, Fig. 2. When sufficient iron has been thus added to form the collar of the shaft—assuming it to have a collar—it is rounded under the hammer, as at C, Fig. 3 and the body of the shaft next to the collar is roughly formed, as at D. More slabs, S S S, are added to bring out the body, and afterward the crank itself is proceeded with, as at E, Fig. 3 The piece will begin to assume the appearance of A, Fig. 4. Then more slabs are welded on the top, as at S S S, Fig. 4, till the depth of the crank is obtained, after which the forgeman proceeds to finish the collar and body of the shaft, as shown in Fig. 5. The collar, on being finished, is cut all round, as shown at C D, so that it may be more easily detached from the stave when the shaft is completed, leaving only sufficient connection to carry it till then. The forgeman then cuts the gable of the crank as at E G, and rounds up the body and neck as at B N. This, it will be observed, is a speedy process, and would invariably be adopted if it was not attended with a very serious drawback; it is very hazardous to the solidity of the forging, for it will be easily understood that not above a third of the crank itself can be thus formed, because the iron at the neck N would not carry a greater mass. If the whole mass of the crank, or even the half of it, was formed before the body and neck of the shaft were finished, a proper heat could not be taken on the body and neck for finishing without the neck giving way or rupturing. Indeed, as it is, the undue proportion often causes the shaft to be strained at this part, where most strength should be, so that it is rendered weak and a flaw is developed, which by-and-by causes it to be removed from the steamer as dangerous and useless, if, indeed, it does not break outright; so that the forgeman, if he adopts this method, must be very careful to proportion the amount of iron he has massed in the furnace to the size of the body he is finishing, otherwise the weakening above mentioned will take place. All marine engineers will easily recognize this defect, which frequently occurs, but the cause of which is probably not well understood. Such a flaw will present a similar appearance to that shown at F, Fig. 6, taken from an actual example. This difficulty of proportioning the part of the crank first forged to the size of the neck will be still better understood by the appearance of it in the furnace, as shown in Fig. 7.

Having reached this stage, with one end of the shaft completed, as also that portion of the crank itself which of necessity was completed before the collar was cut in order that the neck might be finished, no more iron can be added on the top edge, as it is up to the full depth already; it must therefore be added on the flat, as in Fig. 8, where the piece is shown on its flat side in the furnace, the finished portion being outside the furnace door. A number of slabs, S S S, are then placed side by side to bring out the width of the crank further; these being welded down, the piece is turned upside down, and the process repeated on the other side. Afterward other slabs are similarly placed on both sides, as shown in Figs. 9 and 10, of which one is the flat and the other is the edge view of the crank at this stage; and this is continued till sufficient iron has been massed to allow of the other gable of the crank being cut down, as at A, Fig. 11, and sufficient also to allow of the other part of the body B being rounded, and prepared for further piecing out. Now, it will be observed that the first gable finished has the slabs all welded on the edge of the crank, as shown in Figs. 3, 4 and 5, and the hammering has all been on the edge; hence the subsequent hammering on the flat has a tendency to open up the weldings, if they have not been thoroughly made. A section taken at A B, Figs. 7 and 8, will show as in Fig. 12, the weldings being across the web of the crank; the circle indicates the section which the crank pin would present if cut through there. But when the slabs are placed on the flat afterward, some of the joinings of the end of the slabs, or "scarf ends," are certain to fall within the crank pin, as seen in Figs. 8, 9 and 10; therefore, the section through C D, Figs. 8 and 9, will show somewhat like Fig. 13, where the circle indicates the position of the crank pin. The flaw thus produced, called "a scarf end in the pin," is readily recognizable by all marine engineers; at E, Fig. 14, is a sketch from actual occurrence. When the second gable is cut, and the other end is rounded, there is only the other collar to put on—if a double-collared shaft—and the forging is completed. This method is so speedy as compared with any other, that it is often resorted to even at the risk of making a bad forging; and too many broken shafts testify to the fact. Besides, it may be observed that in making a double-crank shaft, while the one crank may be made in this way, the other must; for, the first crank A, Fig. 15, being completed, and the body B, between the two cranks, also completed, the second crank C must of necessity be pieced off this body, even at the risk of the neck N being strained. This may account for the many instances in which one of the cranks of a double-crank shaft gives way, rendering the shaft useless; and also for the plan, now almost universal, of making the two cranks separately and coupling them together; a further object being, no doubt, to have the means of replacing a defective half, if need be, without losing the whole shaft. At Lancefield, when a double-crank shaft is to be made, the after crank, A, is first made by the method afterward described, so as to insure that this crank, through which, as being next the propeller, all the power of the engine passes, is perfectly sound; and in piecing the other crank off the body it is worked with slabs on the flat instead of on the edge, as afterward described. The writer's own opinion is that the crank is the most important part of the shaft, and, therefore, at all costs, should be made first. Others, no doubt, may take the same view, and to avoid the risks just mentioned may adopt the following method:

Second Method.—This method builds the middle first, and is called "turning the shaft end for end." The shaft is begun from a stave, by the addition of slabs, as shown in Figs. 1 and 2. Fig. 16 shows it with iron added in slabs, till a butt is formed, as at B, to form the nucleus of the crank; slabs S S S are then piled on it to bring the crank up to the hight. These are beaten down and welded, and more are added, as at S S S, Fig. 17, till the full hight of the crank is reached. Should the web—or edgeway of the crank—be thick, two slabs are frequently used to make up the breadth, placed edge to edge, as shown in Fig. 18; the width of these slabs being limited by that at which the shinglers can conveniently work and turn them under the steam-hammer. The crank, however, is completed without any "side slabs," such as shown in Figs. 8, 9, 10, for the beating down of the slabs on the edge broadens out the mass, and gives sufficient material to forge out the crank to the proper hight by hammering on the flat. The crank is afterward cut at the off gable at G, Fig. 19, the body B pieced out and rounded, the collar welded on, and then a small stave, S, is drawn upon the end, to enable the forgeman to handle the piece when he "turns it end for end," to complete the other end of the shaft. This method, though better than the last, is also objectionable; for though there is not equal risk of "scarf ends" in the pin, yet the weldings are all on the edge, as shown at T, Fig. 20, where the section of the crank pin is shown by the dotted circle; and the cheeks of the crank, O O, are thus liable to give way if a heavy strain comes on the crank when at work. The defects arising from this cause are shown as below, Figs. 21, 21, and will be readily recognizable by all engineers.

Third Method.—Considerations such as these have led to the adoption of the third or Lancefield method. Fig. 22 shows the piece begun from the stave in the usual way, with the slabs all welded, however, on the flat, till a basis is formed for the building up of the crank. A portion, A, is roughly rounded to form the one end of the shaft, and the butt of the crank will present the appearance of a slightly elongated square, as shown at B B, Fig. 23. The workman then "scarfs" or hollows it down at one edge all along the side, as shown in Fig. 24 from A to B, and as indicated on the end view by the dotted line from C to D; it will then present the appearance shown by the end view, Fig. 24, being somewhat bulged outward at the points E and F. Three long thin slabs, S S S, forged and shaped for the purpose, are then placed on the hollowed part, the piece lying flat in the furnace. These slabs are tapered a little the breadth way, not on the length, and little pieces of iron are interposed between them, to keep the surfaces apart and allow the flame free access between them. The object of making them thin is that they may be all equally heated, which is not so readily achieved when the slabs are thick; and the object of the tapering is to allow the slag to flow out freely when the uppermost slab is struck by the steam hammer. The surfaces thus get solidly welded. Fig. 25 presents the slabs thus placed in elevation, and Fig. 26 in section. The slabs are forged long enough to go right across the whole width of the crank, excepting about 6 inches; this margin is necessary to allow of the lengthening out of the slabs to the whole width under the process of forging. After these slabs are perfectly welded, the piece is turned upside down, and the process is repeated on the other side, as shown in Fig. 27. When welded down the mass has increased in depth as well. Another scarfing takes place on the first side, and then another on the second side, as shown in Figs. 28 and 29, and so on, till the full size is obtained; and it will be seen, as in Fig. 30, that by this process of scarfing equally from both sides, the iron from the very middle of the body of the shaft—originally as at H I in the end view, Fig. 23—is drawn up quite to the crank pin. The pin will show in section as the dotted line, Fig. 30, and it will be seen that by no possibility can there be a scarf end in the crank pin, as the slabs in all cases go right across the crank, and also that the cheeks of the cranks have no edge weldings crossing them, as in the previous cases: for the tail of a slab may be at R, while the other end may be at S, Fig. 30. The fiber is also developed by the continuous drawing up of the iron consequent upon the repeated flat scarfing across the whole width of the crank. When the crank has been thus massed sufficiently large, it is cut at the gable, with sufficient material left to piece out the other body of the shaft. This is now done, the coupling welded on and a small stave drawn on the end to enable the forgeman to manipulate it, when it is turned end for end, to complete the other end, as shown already in



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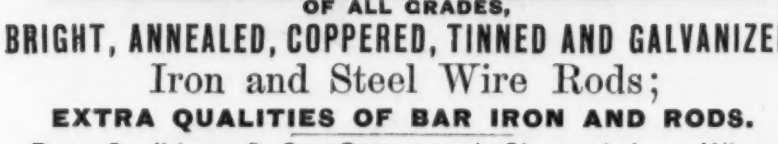
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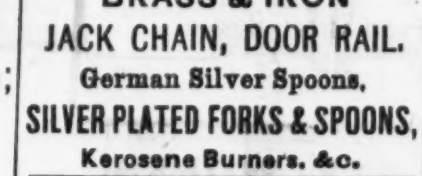
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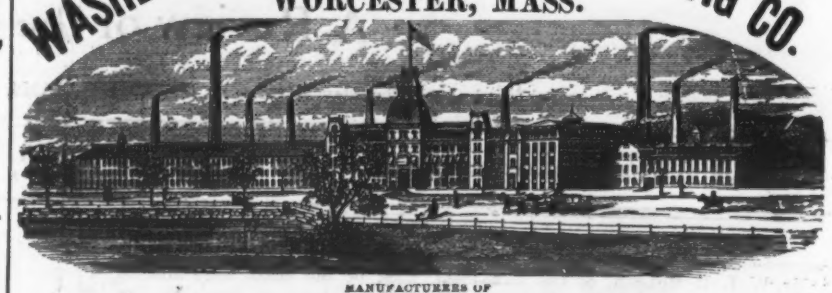
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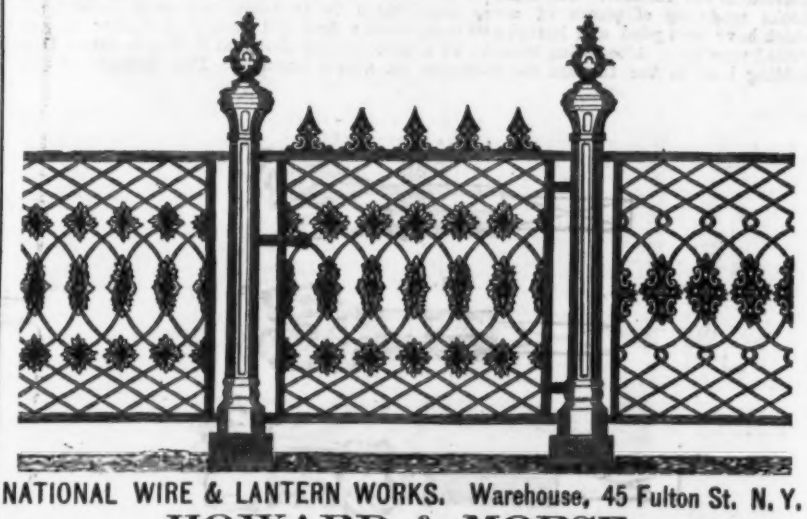
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Fig. 19. These proceedings occupy longer time than either of the other two methods, and consequently cost a little more; but the advantage is well worth all the difference, as greater confidence can be entertained that the forging is every way satisfactory. In brief, by making the crank first is avoided the liability to weakness at the neck, characteristic of the forgeman's making the shaft before him, as in the first method, by the repeated "side scarfings" is avoided the liability to fracture across the cheeks, consequent upon the edge weldings of both first and second methods; while by having the slabs the whole length of the width of the crank any "scarf end" in the lengthway of the crank pin is impossible—such as may occur in the first method; and the welding of the mass of the crank being wholly on the flat must tend to form a more solid forging than if hammered otherwise. Thus, if the forging is well heated and properly hammered, the system promises to ensure that no weak part will be found in the shaft after it is finished and put to work.

The writer believes, from the success which has already followed in every case the adoption of this method, that it will eventually be found that almost more depends on the mode in which a crank shaft forging is constructed than on the material of which it is made. This leads him to make some observations regarding the material for such shafts. It is of course well known that in the early days of engineering, before the time when steam navigation had received its great impetus by the invention of the screw propeller, the connecting rods, cranks, shafts, &c., of land engines were all formed of cast iron, except, indeed, where the connecting rods were made of wood, strapped with plates of wrought iron, as frequently was

FIG. 22

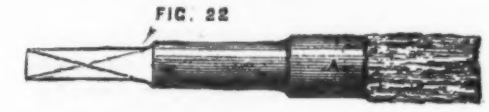

FIG. 23

FIG. 24

FIG. 25

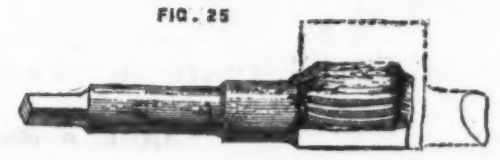

FIG. 27 28 29 30

FIG. 26

the case with pumping, winding and blowing engines. In fact, all the parts that could be made of cast iron were so made, and the piston rods, bolts, keys, straps and other smaller parts were alone made of malleable iron; the smaller pieces being made from rolled bars direct, as at present, and the larger made of similar bars, but placed side by side and bound together or "faggotted," as they were called, from their resemblance to a bundle of fagots. These bars, thus faggotted, were either brought to a welding heat in a smith's hearth and welded under the sledge hammers of the men called "strikers," or hammermen; or else heated in a furnace, and welded under the tilt-hammer worked by a steam engine. By and by it was found necessary to adopt the stronger material, wrought iron, for parts hitherto confined to cast iron; because the latter was found too deficient in cohesion to stand the strains due to the power of high-pressure steam, which was now almost universally superseding the use of low-pressure steam in the condensing engine. The system of faggotting, however, was still carried out, even far into the history of marine engineering; but when the rapid increase in the dimensions of engines, both stationary and marine, called forth the steam hammer, and so rendered the forging of heavy masses comparatively easy, the system of fagotting fell into disuse, for the following reason. In making up a fagot, say of 18 or 20 inches square, it was found that in the furnace the outside bars would reach a welding heat much sooner than those in the middle; consequently on welding this fagot under the steam hammer, though the blow might reach to the center, yet the interior would not be welded, while the surface was; hence the shaft or other forging would not be welded throughout, and it was no uncommon thing for a shaft to break and expose the internal bars quite loose and separate from each other. When it was seen that malleable was so much superior to cast iron, and that the system of fagotting was so imperfect, the adoption of "scrap iron," which was then composed principally of parings of boiler plates, pieces of cuttings from smith's shop, old bolts, horse shoes, angle iron, &c., became general. These being piled together in suitable pieces, and in a pile of suitable size, for the convenience of working, were brought to a welding heat, and beaten out into a slab, or oblong-shaped piece, ready for the forgeman, who would build two or three together, adding more when required, and so bring out his piece to a sufficient size to enable him to shape his forging out of it. Then it was that engineers, seeing what an increase of strength they obtained by these means, invariably specified on their drawings—as many of them still do—"These forgings are to be made of carefully selected scrap iron, free from flaws and defects." To meet the requirements of their customers therefore, forgemasters had now nothing to do but to select and use the best available scrap iron; but the universal adoption of iron hulls in place of wooden ones, conjoined with the rapid and unprecedented increase in steam navigation, soon introduced a class of scrap iron which did not possess the qualifications of good scrap, and also called for a very much greater supply of forgings than could be obtained in superior scrap iron. The consequence was that shafts of scrap iron, when turned and finished, became liable to exhibit streaks and seams, not due alone to imperfect welding in the forging, but likewise to the laminations and imperfections of the original scrap iron, which the process of piling and shingling into the slab was not sufficient to obliterate. So constantly does this yet occur that it causes a strong temptation to make such forgings of new iron puddled direct from the pig and then shingled into slabs or bloom, under the idea that these streaks and seams will thus be avoided, and that the iron will be improved almost to the condition of scrap iron while being forged under the steam hammer. This, however, is found not to be the case. The forging is certainly free from the streaks of the scrap iron, but this is obtained at the expense of strength, for the material is too raw; it wants cohesion, and has not had the proper kind or amount of working to bring it to the condition of superior wrought iron. This method is still further tempting, inasmuch as it is far cheaper than the other; the material costs less than scrap iron, and as it welds at a lower temperature, a forging can be much more quickly and easily made. Still, for whatever class of machinery it may be fitted it should certainly be eschewed in every case for a crank shaft or propeller shaft.

From these considerations it has been the custom at Lancefield, in the preparation of the iron for crank shafts, to improve upon the ordinary condition of the scrap iron in the following manner: The pile is made up of carefully cleaned and selected scrap; it is brought to a welding heat, and then hammered under the steam hammer; but instead of being beaten into a flat slab for the foreman, it is beaten into a square billet, which is afterward rolled in the rolling mill into a flat bar, as if for "best best" merchant iron. By this additional heating, hammering and rolling, all the different qualities of the scrap iron composing the pile are merged into one homogeneous material, having the fiber given to it that was lost in the separated portions of the scrap iron; and this, when cut up into proper lengths, and again piled and shingled into the slab, results in a material possessing somewhat the closeness and density of steel, while retaining all the toughness and tenacity of superior malleable iron. The improved method of constructing the forging, previously detailed, is worthy the use of this superior material; and both having been adopted at Lancefield, with results which have commended themselves so unmistakably to many engineers that they now not only specify the material, but stipulate for the mode of manufacture, it is thought the system has only to be more widely known in order to be universally adopted. It is certain to give greater confidence in the endurance of such important parts of the machinery, although this confidence may have to be obtained by a small increase in the cost, due to the extra workmanship both on the material and on the forging. When we take into consideration the vastly accelerated speed of the marine engine in late years, and the many disastrous effects which follow the breaking of a shaft at sea—also that the tendency of the age is still toward much higher pressures and further lengthening of stroke—it is not surprising that improvement in such an important part as the crank shaft should be eagerly sought after; but it has hitherto been sought in the direction of the material alone. Cast steel has been advocated, and brought to some extent into use; but its expense renders such shafts costly out of all proportion to the other parts of the engine; while in the event of their heating when at work, a very frequent casualty, and having the water hose directed upon the crank pin or journals, it cannot be expected that the material will behave any

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better, or even so well, as tough wrought iron. What is termed puddled steel is liable to the same objection, and, probably, from its mode of manufacture, in a still greater degree. The so-called mild steel is no doubt proving itself a superior material, and yielding good results when rolled into ship or boiler plates. But thus prepared, it is more costly than rolled scrap bar; and, if not rolled, but cast into an ingot, then it possesses some of the crystalline characteristics of steel, with all the disadvantages attending its manipulation into a forging. For extra large crank shafts, the fear of unsoundness, arising from the ordinary mode of forging, has led some engineers to consider the propriety of building the shafts and cranks in separate pieces. This, with engineers generally, has not hitherto been looked upon with favor, as the fewer the pieces the more rigid the shaft. Moreover, the increased weight necessitated by this separate building is viewed as a disadvantage, even, although it were not attended with greater cost, as undoubtedly it is. The material and mode of manufacture advocated in this paper may tend to dissipate some of these apprehensions. They will not obviate defective construction in the engines themselves, or faulty proportion of their parts, or neglectful supervision of their working; but they will reduce to a minimum the risk of breakage in such untoward circumstances. If any objection be taken on the score of extra size, the enterprise which a quarter of a century ago engaged in the making of the unusually large shafts necessary for the Great Eastern, may still be trusted to meet the advancing requirements of the present day.

The History of Iron Making with Anthracite.

The Pottsville *Miners' Journal* contains the following extract from a forthcoming "History of the Anthracite Coal Trade," by Mr. P. D. Luther, which, with the exception of a very important omission referred to elsewhere, is substantially correct, and contains some interesting details:

The discovery of the process for smelting iron ore with anthracite coal was an event of transcendant importance in the manufacture of iron in Pennsylvania, and, as a resulting consequence, in the production of anthracite coal. The impulse it gave to the trade in both commodities diffused immense and inestimable benefits upon commerce, navigation, manufactures and every industrial pursuit. The construction of furnaces along the main channels of navigation—especially in the valleys of the Schuylkill and the Lehigh rivers—had an almost magical effect upon the development of the natural resources of the country, enhancing its mineral and agricultural wealth, its internal trade, commerce, manufactures and every description of business and industry—all of which was made manifest by the increase and spread of population, and the aggregation of towns, villages and cities. The consumption of anthracite coal affords a fair index of the consequential results of the manufacture of anthracite iron. The consumption on the line of the Schuylkill above Philadelphia, for example, in the year 1839, at which time the first anthracite furnace in the United States—the Pioneer, at Pottsville, Schuylkill County, Pa.—was put into blast, was 30,290 tons. Ten years afterward, in the year 1849, it had increased to 239,290 tons; in 1859, to 554,774 tons; and in 1873, to the immense amount of 1,787,205 tons. A large proportion of this rapid expansion of the coal trade on the line of the Schuylkill can be fairly attributed to the iron works which so greatly stimulated every business enterprise.

DR. GEISENHEIMER'S EXPERIMENTS.

Prior to the discovery of the new process, the subject had engaged more or less attention, but without satisfactory results. On the 19th of December, 1833, Dr. F. W. Geisenheimer obtained a patent for the manufacture of iron with anthracite coal, and in 1836 he made experiments with his process at the Valley Furnace, in Schuylkill County, Pennsylvania, succeeding, it was said by competent judges, in making a small quantity of iron of excellent quality. But in consequence of part of his machinery breaking, further experiments were abandoned, and from some cause they were never resumed. On this occasion the cold blast was used. While it may be possible to make anthracite iron with the cold blast experimentally, the yield will not be the same in proportion to the amount of fuel as it is with the hot blast, or sufficient to make it a commercial success. The death of Dr. Geisenheimer, which occurred on the 20th of June, 1838, terminated his researches and experiments in his praiseworthy pursuits.

THE HOT BLAST DISCOVERED.

To George Crane, of the Yniscedwin Iron Works, near Swansea in South Wales, must be accorded the honor of successfully solving the problem of smelting iron ore with anthracite coal. At a meeting of the British Association for the Advancement of Science, held at Liverpool, in September, 1837, Mr. Crane presented a paper to the association, in which he describes his process and its results. During the fourteen years that Mr. Crane had been engaged in the iron trade of South Wales, he had his attention anxiously directed to the application of anthracite coal to smelting purposes, and he had at different periods, and at a large outlay, tried a variety of plans, but without success, until the idea occurred to him that a hot or heated blast, upon the principle of Neilson's patent, might, by its greater power, enable him to complete the combustion of this very peculiar coal. By this means he completely succeeded in the application of anthracite coal to the smelting of iron ore.

"I have used," said Mr. Crane, "no other fuel since the 7th of February, 1837, than anthracite coal in a cupola blast furnace, and that the success of the experiment in the combination of hot or heated air with the coal in question, as fully detailed in the specifications of my patent of improvement, enrolled in March last (1837), has been in every respect of so satisfactory a description, whether with regard to the quantity of the iron produced, the quality of the iron and the economy of the process, that I am now, and have been for the last thre

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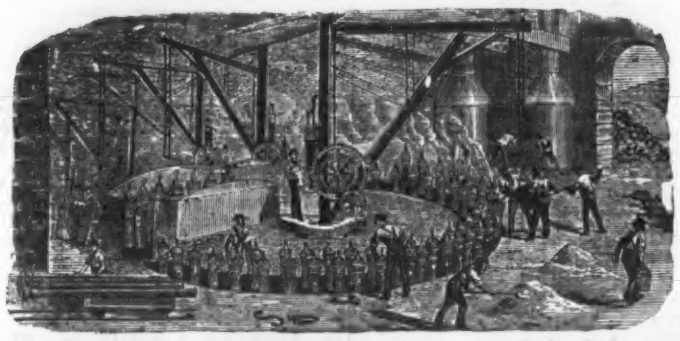

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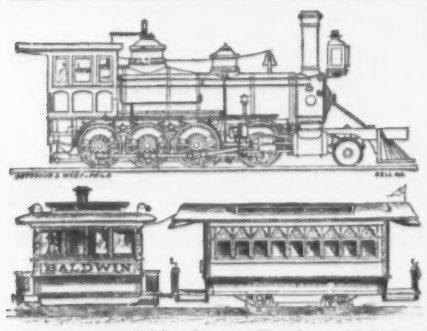

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NOISELESS STEAM MOTORS,

For city and suburban Railways.

These machines are nearly noiseless in operation; show no smoke with the use of anthracite coal or coke as fuel, and show no steam whatever under ordinary conditions of service. They can be run at two or three times the speed of horse cars and draw additional cars. Circulars with full particulars supplied.

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This steel is made from Chromium and Iron, and is remarkable for Strength, Durability and Uniformity. Send for Circular, where the price will show what does 25 to 75 per cent. more work than other cast steel. It is adapted to all kinds of work where cast steel is used. Chrome Steel Castings from 25 to 500 lbs. to order.

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Manufacturers of and Dealers in

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A superior article delivered at low figures at any furnace within the district or at any point on the Ohio River. Refer to Roane Iron Co., Chattanooga Iron Co., or S. B. Lowe, Chattanooga.

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All shapes, small and large, including

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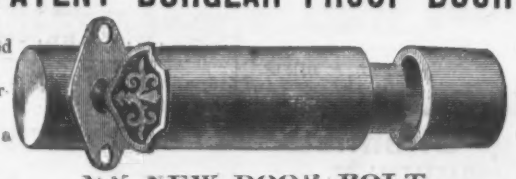
heretofore made by the Orcutt Manufacturing Company, of New York, we are now prepared to supply the trade with these celebrated Irons of the finest finish and quality, and at the lowest price. They can be heated in three minutes on any ordinary gas burner. These Irons are adapted for gentlemen to iron their silk hats, and for ladies traveling in this or foreign countries; also for dressmaking, as well as for general use. Our Irons all have a polished wooden handle, and require no holder, and are all nickel plated and highly finished. A liberal discount to the trade.

Send for a descriptive circular.

We also manufacture the Troy Polishing Iron for laundry purposes.

IVES' PATENT BURGLAR PROOF DOOR BOLT.

Can be applied wholly by boring, and is a



sure protection against burglars or tramps.

MY NEW DOOR BOLT,

in Nickel plate or Bronze, is designed for both out and inside doors, your sleeping or bath-room, throughout a hotel, or on any door that may need inside Bolts. It will take the place of the one common Flush or Barrel Bolt being as easy to apply, leaving your door more secure and of better finish, and besides it fills the place of many a more expensive Bolt that operates no better or any more secure. Agents, **GRAHAM & HAINES, 113 Chambers st., New York.**

A. T. YOUNG, 36 Pearl street, Boston; LATHAM & MATTHEWS, N. E. cor. Sixth and Commerce streets, Philadelphia, Pa.; POTTER & COPELAND, 21 E. Congress st., Detroit, Mich. Price list sent on application. **HOBART B. IVES, Sole Manufacturer, Fair Haven, Conn.**

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STANDARD GIRARD WRENCH.

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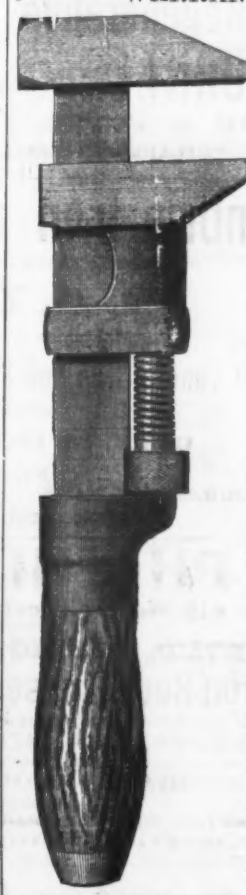
WARRANTED.



FOR **STRENGTH** AND **Durability** IT HAS NO SUPERIOR.

GUARANTEED IN EVERY RESPECT.

Wrought Bar, Head and Screw.

Owing to the *increased demand* for these justly Popular Wrenches, we are now manufacturing more than any other establishment in the world.

Our Wrench having been imitated by other manufacturers, we have adopted the above Trade Mark, and will hereafter stamp all our goods.

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Manufacturers of

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ROLLS,

Both Solid and Hollow,

Ore and Clay Pulverizers, Rotary Squeezers, Haskin's Patent Double Spiral Pinions, and Rolling Mill Castings of every description.

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SEAMLESS DRAWN

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TACK PLATES,

Forgings of every description.

Bridgewater Iron Co.'s

HORSE NAILS.

PRICE LIST.

Nos.	5	6	7	8	9	10
Per lb.	26¢	23¢	21¢	20¢	19¢	18¢

Liberal discounts to the Trade.

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Coal

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The following superior and well-known Lehigh Coals are mined by ourselves and firms connected with us, viz.

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THE HOBOKEN COAL CO.,

Dealers in

SCRANTON, LEHIGH and other COALS

Retail Yard on D. L. & W. Railroad, cor. Grove and 10th sts., Jersey City. Coal delivered direct from shute to carts and wagons. Families and manufactories supplied with the best qualities of Coal at the lowest rates.

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MINERS' CANDLES.

Superior to any other Light for Mining Purposes. Manufactured by

JAMES BOYD'S SON,

Nos. 10 & 12 Franklin st., New York.

months, actively engaged in making the necessary preparations for the introduction of anthracite coal—instead of the coke of the bituminous mines—into the whole of the blast furnaces which I at present have (three in number) at the Yniscedwin Iron Works."

Mr. Crane gave a statement of the manner in which the idea first occurred to him of the application of a heated blast to anthracite coal: "One evening after I had placed a piece of anthracite coal upon my parlor fire (which had before been made up with bituminous coal) and had allowed it to arrive at a red heat, upon my applying as fierce a blast to this piece of coal as I could raise from a pair of bellows, I noticed the appearance of a black mark or spot upon that part of it where the air impinged upon it; on my continuing the like rapid current in the same direction, I shortly blew the fire out of it. I at once perceived that the effect of the strength of the current of air when cold, which we of necessity are obliged to blow into our furnaces to secure the passage of the blast through the high and dense column of materials contained in an erection like a blast furnace—instead of encouraging ignition, was actually unfavorable to it. On giving the thing a moment's reflection, the question promptly occurred to me, what would be the effect of turning a blast into a furnace upon this coal which would itself burn—which would itself melt lead? I at once determined that it was a thought which was worthy of mature reflection. The further consideration which I gave to the matter, and the further experiments which I shortly afterward instituted—which were continued at a great expense for some months—have at length been crowned with full success."

The date of Mr. Crane's patent was the 28th of September, 1836. He soon became involved in protracted litigation in defense of his claim to the invention, which was disputed. On the 13th of June, 1842, an opinion in his favor was given by Lord Chief Justice Tindall. The Judge said: "There was abundant evidence in the cause that it had been the great object and desideratum before the granting of the patent to smelt ironstone by the means of anthracite coal, and that it had never been done before."

In 1837 Mr. Crane applied for letters patent in the United States, but he was opposed by Dr. Geisenheimer, and failed to establish his claim. Subsequently the heirs of Dr. Geisenheimer made the right public, and hence anthracite has been freely used in the United States in the manufacture of iron without patent charges or fees.

THE PIONEER FURNACE.

Soon after the success of Mr. Crane was announced in this country, numerous projects were formed for the erection of furnaces, and among the first in the field were Burd Patterson and others, who, early in the spring of the year 1838, commenced the erection of the Pioneer Furnace at Pottsville, Pa. The work progressed rapidly and was completed and the furnace put in blast on the 13th of July, 1839, by William Lyman, under the superintendence of Benjamin Perry, an experienced founder. The first shipment of iron from it, consisting of 54 tons 10 cwt., was made on the 14th of November, and at that time the furnace was yielding about 50 tons of iron per week.

In connection with this subject, we cannot refrain from introducing an extract from a letter dated April 21, 1838, sent to the Editor of the Pottsville *Miners' Journal* for publication. The writer says: "This morning I went, at the request of a friend, with two others, to the Mutual Insurance office to see some iron, coal, ore, slag, &c., from Crane's works, in Wales, brought out by a Welsh miner of the name of Richard Jones, well known to Burd Patterson and others. The experiment is complete, and I understand it was the intention of Mr. Crane, if he had his patent, to send out a hand immediately to this country to erect furnaces in Schuylkill County; but Mr. Geisenheimer's *caveat* prevents him doing so, and the coal interest of our county suffers by it."

The Richard Jones referred to became one of the boldest and heaviest operators in coal in the Schuylkill region. He abandoned the business many years since, but continued the business of selling coal in Philadelphia. When the writer saw him last—in 1876—he was still in the harness, a veteran in the service, but agile and frisky as the youngest coal factor of them all who frequented Walnut street.

CELEBRATING THE SUCCESS OF ANTHRACITE IRON.

On the 18th of January, 1840, Mr. Lyman, having run the Pioneer Anthracite Furnace three consecutive months with triumphant success, was entitled to a premium of $5000. A committee was appointed to inspect the works, composed of the following persons: Nicholas Biddle, Thomas Biddle, Isaac Lee, Jesse Richards, J. M. Sanderson and Dr. Benjamin Kugler. In the performance of the duty imposed upon these gentlemen, they visited Pottsville on Friday, the 17th of January, 1840. On the following morning they visited the coal and iron mines of Messrs. Mann & Morris, at Mount Laffa, the neatness and workmanlike appearance of which gave universal satisfaction. In the afternoon they assemoled at the furnace to witness the tapping, inspect the works and pronounce judgment upon them. After the inspection, they repaired to the Mount Carbon Hotel, at the invitation of Mr. Lyman, when an elegant repast was prepared, to which about eighty invited guests sat down. "After the *stacks* of the visitors had been fully *charged*, and the *tappings* of generous wine began to *flow*, the host called for bumpers." In reply to a toast, Nicholas Biddle addressed the company. Among other things he said: "Coal and iron have been ever among the most efficient agents in the progress of civilization; the geologist tells us that the diamond is carbon in its greatest known purity, and carbon is the principle in your coal; but that coal is disparaged by the comparison, in the ratio which it exceeds the useless diamond, for every purpose of utility, necessity and enjoyment." Mr. Biddle spoke at length of the intrinsic value of iron in comparison with the miscalled precious metals; he proclaimed it the best friend of man, from the plowshare to the mighty steam engine. These vast elements of wealth—coal and iron—had now been united in their purposes of utility, and assisted each other in giving lavish benefits to the human family. The changes which the discovery must make in the economy of our country were adverted to and exemplified by many interesting statistical facts. "In 1836 and 1837 the amount of $24,000,000 worth of iron and steel was imported, and the last five years these imports have amounted to forty-nine millions into Pennsylvania alone, teeming with all the requisite native material; for the last several years 80,000 tons of iron, excluding hardware and cutlery, have been imported, more than half of which was railroad iron, which cost at least three and a half millions of dollars." "This very day," continued the speaker, with startling directness to a humiliating fact, "in visiting your mines have we seen at their utmost subterranean extent the railroads which convey the coal and iron to the pit's mouth, shod with British iron manufactured in Britain and paid for with our money, and this while we are blessed with profusion of material for its manufacture at our very doors, while the United States contains at least 80,000 square miles of coal land, which exceeds sixteen-fold all the coal measures of Europe, and one uninterrupted field of which, extending nine hundred miles—from our State to Alabama—contains 50,000 square miles, or more than the whole superficial area of England. Of the 54 counties of Pennsylvania, 30 have coal and iron in them; of her 44,000 square miles of territory, 10,000 teem with these indigenous sources of national wealth. All Great Britain has but 2000 square miles of coal and iron measures, and thus we see Pennsylvania has five times the material of the country which annually takes from us ten millions of dollars for the manufactured article."

Mr. Biddle concluded with the following sentiment: "Old Pennsylvania, her sons, like her soil—a rough outside, but solid stuff within; plenty of coal to warm her friends; plenty of iron to cool her enemies."

George W. Farquar followed in an able and appropriate address, and thus ended the celebration of the union of anthracite coal and American iron.

RAPID GROWTH OF THE TRADE.

In less than three years after the Pioneer Furnace had been blown in there were 12 furnaces in operation with anthracite coal, and so rapid was the growth of the trade that in the year 1872 the production of anthracite pig iron in the United States was 1,369,812 tons, consuming in the manufacture about 3,000,000 tons of coal and probably as much again in the different processes of its conversion into rolled and bar iron and steel. In the year 1875 there were 240 complete stacks in Pennsylvania using anthracite coal, whose annual capacity amounted to 2,186,900 tons.

The importation of British rails has ceased, and wonderful to relate, American cutlery has entered into competition with England in its home market, and has even dared to penetrate the stronghold of its manufacture—Sheffield itself!

Production of the Iron and Steel Works of France for Six Months, 1879.—The *Bulletin du Comité des Forges de France* has the following compilation of the production of the iron and steel works of France for the first six months of 1879, compared with the corresponding period of 1878, in metric tons:

	1879.	1878.
Foundry Pig	131,705	128,713
Forge pig	530,241	584,970
Wrought of all kinds	324,783	321,084
Iron rails	20,195	26,891
Sheet and plate	67,968	55,921
Bessemer or open-hearth rails	125,004	101,958
" " Bars, &c	15,716	10,216
" " Sheet	4,821	5,162
Cast or puddled steel bars, &c	11,902	12,778

These figures show a decline in foundry pig, iron rails and some classes of steel, while the production of foundry pig and wrought iron of all kinds has slightly increased. The improvement in the production of Bessemer and open-hearth steel is, it will be seen, by no means considerable.

Unless there is gross exaggeration in the estimates of the Paris *Bulletin des Halles*, the French purchases of foreign wheat for the harvest year will be on a scale without precedent during any year of peace. An estimated deficiency of some 50,000,000 bushels, to be supplied almost exclusively by this country, involves an almost incredible advance on the 4,500,000 bushels exported to France in 1877–8, even assuming that as much more was sent by way of England. During the last fiscal year the exports of wheat and wheat flour from the United States reached a total equivalent to 160,000,000 bushels. About three-fourths of that quantity found its way to Great Britain and her colonial possessions. For the current fiscal year our wheat exports can hardly fail to reach 200,000,000 bushels, with a proportionate increase on other descriptions of breadstuffs. For the last fiscal year our exports of cereals were over 25 per cent. greater in value than the exports of cotton. For the year ending with next June the excess will be at least 50 per cent., and wheat alone, which very nearly equaled cotton last year, will fairly take its place as king.

Mr. Kingzett, a well-known manufacturing chemist, has commenced to make on a large scale a new disinfectant called sanitas, by the following method. A blast of air is blown through Russian turpentine, floating upon water contained in large earthenware jars kept at a blood heat. As this process of oxidation, which in all lasts 300 hours, goes on, some of the products of decomposition sink into the water, when they split up into peroxide of hydrogen, camphoric acid and other substances, constituting crude sanitas, which owes its disinfecting power to the peroxide of hydrogen it contains. The oily mass floating on the water is richer still, and is turned into sanitas powder by mixture with lime. The air which comes off from the earthenware jars is charged with some of the turpentine, which is condensed in suitable appliances.

AUBURN FILE WORKS,

Superior Hand-Cut

FILES AND RASPS,

MADE FROM IMPORTED STEEL. EVERY FILE WARRANTED.

FULLER BROS., Sole Agents,

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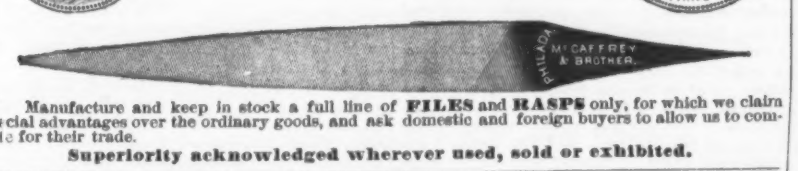
Paris, 1878. *For Superiority.*

McCAFFREY & BRO.,

PENNSYLVANIA FILE WORKS,

Philadelphia, Pa., U. S.



Manufacture and keep in stock a full line of **FILES** and **RASPS** only, for which we claim special advantages over the ordinary goods, and ask domestic and foreign buyers to allow us to compete for their trade.

Superiority acknowledged wherever used, sold or exhibited.

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MANUFACTURERS OF

Augers, Auger Bits,

BORING MACHINES & BORING IMPLEMENTS.

TENNIS & WILSON,

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Manufactured from Extra Cast Steel and warranted.

SOLE MANUFACTURERS OF

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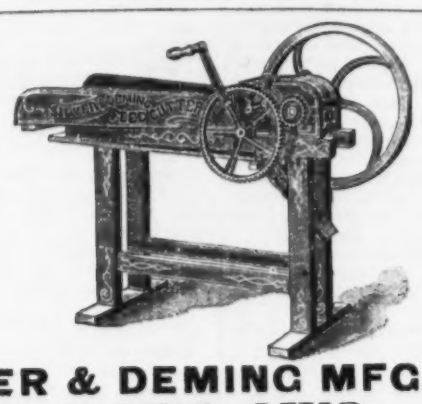
Snell's Solid Cast Steel Augers, Auger Bits, Car Bits, Screw Driver Bits, Taper Pod Gimlets, Taper Pod Gimlet Bits, Countersink Gimlet Bits, Long Millwright Augers, Long Rafting Augers, Coopers' Doweling Bits,

AND ALL KINDS OF MACHINE BITS MADE TO ORDER.



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THE SILVER & DEMING FEED CUTTER.

Seven sizes for Hand and Power. The most popular Feed Cutter in America.

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BEST PORCELAIN-LINED LEMON SQUEEZERS.

"Common Sense" Mouse Traps.

HAND-MADE ROSEWOOD FAUCETS.

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FOR HOME AND EXPORT TRADE.

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TOOL HANDLES AND SEAT STICKS FOR CARRIAGES, &c.

Also all kinds of Enameled Goods made of wood, such as Drop Knobs, Furniture Knobs, Organ Stops, Brush Handles, &c., &c. Also sole manufacturer of the Patent ANTI-NERVOUS TRIANGULAR PENHOLDER. Send for Catalogue and Price List before purchasing. F. R. EMMONS, Agent, 132 Duane St., New York. Manufactory at BURLINGTON, Conn., U. S. A.

[See advertisement in *The Iron Age* of September 4, 1879.]

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IMPROVED FARM IMPLEMENTS AND MACHINERY.

Established 1868.

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Best Cast Steel.

HAND-CUT. Manufactured by

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A. Field & Son, Tacks, Brads, Nails, &c.
G. F. Warner & Co., Carriage Clamps.
We have also on hand a general assortment of Hardware.

THE GIANT PAD LOCK.

Manufactured by

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"Superior in Every Respect."

This is one of the best selling Locks in the market, and affords the dealer a large profit. It is thoroughly and strongly made—of the best material—very handsome in appearance, and every Lock is warranted. Orders solicited. Address as above

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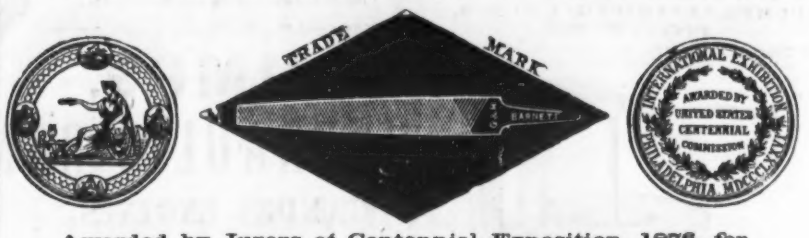
26½ Broadway, New York.

Address P. O. Box 4461.

Black Diamond File Works.



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All descriptions of Files made to order. Price List mailed on application. **Established 1863.**

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DOOR BOLTS,

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For Heavy Doors.

The BOSS and CROWN SPRINGS for Screen and Light Inside Doors.

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Report of the United States Testing Board on the Properties of Wrought Iron and of Chain Cables.

(Continued from *Iron Age*, Sept. 18, 1879.)

THE CABLE.

The cable-link consists of a round bolt 12 diameters in length, which has been bent into an oval form and the ends of which have been welded together. A stud or stay is introduced between the sides, to prevent closure under stress and kinking while the cable is being handled or used.

The tension tests upon the bars show us what strength should exist in each of the sides of the link, and the impact tests give us an idea as to the power of the transverse sections of the end to resist stress suddenly applied, if the process by which the bar is transformed to a link has no power to change the qualities as found in the bars.

This process involves twice reheating and hammering the ends of the bolts, once to make the scarf and once to make the welds, while the butt end of the link has been heated at the same time with the ends, once for bending. This forging and reheating has a tendency to lower the elastic limit and strength of the two ends of the bolt upon which the weld is made; the process of bending affects some irons injuriously, and the comparatively incompressible stud which prevents closure alters the nature of the strains. If none of these causes reduced the strength of a link, and the single area of each end should be so strengthened by its arched form that it would be equal to the two sides combined, the strength would be just twice that of the bar from which it was made.

A suitable chain iron is one which will develop in the link form the greatest and most uniform proportion of this 200 per cent. And the development of a low or irregular proportion indicates that the iron is not suitable. The divergence from the 200 per cent. marks the extent to which an iron can be called suitable. The causes which operate upon all irons to reduce their percentages are, first, the weld; second, the stud.

We have tested a large number of chain links to destruction, and their action under the strain of tension has been carefully noted. We find that the lowest percentages of the bar's strength are developed by those irons which do not permit strong and thorough welding by ordinary processes, and that in breaking links of all varieties of irons the weld end is generally the weak part of the link, and that with certain types of iron this weakness is so great and of so frequent occurrence that cables made from such iron are very unreliable. In the rupture of 435 links, 333 broke at the weld end end, 86 at the butt end and 16 on the side. The most ordinary location of rupture, if we except irons Fx, F, L, M and Px, was at the quarter of the weld, which rupture is produced by a resolution of the force of direct tension and the resistance opposed by the stud.

An examination of the records of the strength of links, and of the percentage of the bar's strength developed by the links, will show that all of those links which broke "through the weld" were very weak and irregular in both factors. Hence an iron whose weld is, through any cause, unreliable, is not suitable for cable. Experiments indicate that we cannot strengthen the link by changing the location of the weld, and our only resource is to select such iron as is least injured by the process of welding.

Among the causes which produce deficiency in welding properties, there are two which produce great tenacity in the bar, viz., chemical peculiarities and excessive work; therefore, when excessive tensile strength is found to exist in a bar, it should be regarded as a probable indication of deficient welding properties. High tenacity in the bar frequently indicates a lack of power to resist sudden strains. Therefore, in judging by tensile strength alone, it should be considered as more than probable that the strongest bars will produce the weakest cables, although there will undoubtedly be in each of such cables a few links of greater strength than can be developed by irons of less tenacity.

The second cause which tends to prevent the link from developing twice the strength of the bar is the stud. Our experiments lead us to consider that the opinion which is generally entertained, that the studded link is stronger than the unstudded one made from the same iron, is erroneous, both in principle and in fact. Rankine, in his "Manual of Machinery," says: "An unstudded chain has about two-thirds of the strength of a studded chain of the same diameter of wire." John Anderson, LL. D., superintendent of machinery to the War Department, Woolwich, in a work published in 1872, says: "It is to be noted, whatever the explanation may be, that the stayed link chain, when made of the same diameter of iron as the open link, is stronger than the other in the proportion of 9 to 6; the office of the stud is to prevent the collapse of the link, and thereby intercept the shearing action due to the wedge action of one link within the other." American authorities coincide with the above opinions, with which, however, we entirely differ. Theoretically it should not be stronger; actually it is weaker than the open link.

Experiments made upon iron of a soft, ductile type showed that the excess of strength of the unstudded link over that of the studded ranged from 12 to 17 per cent., averaging about 15 per cent. of the strength of the studded links, while with links made of iron of a coarse, hard type, the excess of strength was about 5 per cent. In every case in which there were both open and studded links connected, the studded link first broke. The following abstract shows the extreme variation that we have found in the strength of cable of the same size made from several irons. We gather from it that a variation of from 5 to 17 per cent. may be expected in the strength of ordinary cables, and that if proper care is not exercised in selecting the material, the average variation may rise from 12 to 25 per cent. of the strongest.

Size of Cable. Inch.	No. of Irons represented.	Strength of Cable. Maximum. Lbs.	Strength of Cable. Minimum. Lbs.	Variation in Strength. Pounds. Maximum.	Variation in Strength. Per cent. of Maximum.	Weak links of iron omitted.	Variation in strength, by including omitted links. Pounds.	Variation in strength, by including omitted links. Per cent.
1	6	79,200	67,600	11,600	14.	P.	18,800	23.7
1 1-16	7	86,380	80,000	6,380	19.4	K. M. O.	13,200	14.7
1 1-8	7	122,100	101,700	20,400	16.6	M. Fx.	31,100	25.
1 3-16	9	115,000	109,000	6,000	5.		40,000	34.7
1 1-4	9	137,200	125,000	12,200	8.		42,200	30.7
1 5-16	9	155,040	139,400	15,640	10.	M. K. P.	.....	.....
1 3-8	11	173,000	147,000	26,000	15.	M.	38,400	22.2
1 7-16	11	190,000	168,600	31,000	15.5	Fx.	74,000	37.
1 1-2	11	214,160	194,880	19,280	9.	Fx.	45,800	19.7
1 9-16	11	231,300	191,000	40,300	17.	Fx.	47,360	18.6
1 5-8	11	234,940	207,540	27,400	12.	.....	.....	.....
1 11-16	11	259,060	215,000	37,060	14.	.....	.....	.....
1 3-4	11	283,200	240,000	43,200	15.	.....	.....	.....

There exists a strong prejudice against the use of cables made from links without studs. This prejudice is based upon the opinion, first, that the open link is not so strong as the studded one; second, that owing to the want of support given to the sides by the stud when used, the open link will collapse at a much lower strain than the studded one will, and that this collapse will be so great that the links will nip each other and become rigid; and third, that the liability of the relative position of the links becoming misplaced is greater with the open than with the studded links, from which cause jams may occur in the hawse pipe when running out, or after having remained some time with a slack cable, a sudden squall tautening it might produce the same effect. The first of these objections, viz.: that the open link is weaker than the studded one, as above stated, our experiments show to be without foundation. The contrary is the case under all circumstances. We are led by the results of our tests to doubt that the second objection exists to the extent generally supposed. We find that in all cases the open links begin to change form at a lower stress than the studded ones, but the sides having straightened somewhat, the stress is soon resisted by the tenacity of the material itself, and unless the iron is very soft and ductile (much more so than is usually the case with chain iron) the closure does not continue to be rapid, and at an extreme stress, sufficient to rupture the studded link, if there be one in the section under test, the closure has not been so great as to unfit the open links for service. The third objection to the use of open-link cables is that it is presumed that they are more liable to become fouled and kinked than the studded-link cable. There are reasons based upon facts which actually exist, connected with the process of manufacture, which justify us in the assumption that the danger from this cause is not so great with open link as with studded-link cables.

WEIGHT OF CHAIN CABLES.

The chain cables manufactured by the ordinary systems are very heavy, and we are led by the results of our investigation to believe that their weight can be reduced advantageously, and as great, if not greater, safety be secured. Two methods present themselves, the first founded upon our investigation of the action of the rolls and our impact tests combined, and the second upon our comparative experiments of the strength of studded and open links. The weight and dimensions of the links of cables of different sizes, and of full cables, of the length ordinarily used, are given in the following table:

Size of Cable. Inch.	No. of Links in 15 fathoms.	Finished Links. Length. Inches.	Finished Links. Width. Inches.	Finished Links. Weight. Lbs.	No. of Links in 15 fathoms.	Total Weight of 15 Fathoms of Cable. Studded Link. lbs.	Total Weight of 15 Fathoms of Cable. Open Link. lbs.
1	90[illegible]	5 11-16	3 9-16	2.90	10¼	8,665	7,934
1 1-16	84[illegible]	6 1-16	3 11-16	3.43	10¾	9,794	9,038
1 1-8	78[illegible]	6 4-16	4-00	4.00	11	11,050	10,446
1 3-16	72[illegible]	6 10-16	4-06	4.33	11	12,726	11,664
1 1-4	67[illegible]	7 2-16	4-06	5.00	11	15,442	14,176
1 5-16	62[illegible]	7 9-16	4-06	5.66	11	17,326	15,931
1 3-8	57[illegible]	8 4-16	4-06	6.33	11	18,266	16,664
1 7-16	53[illegible]	8 11-16	4-06	7.00	11	20,143	18,624
1 1-2	49[illegible]	9 6-16	5-06	7.75	11	21,697	20,324
1 9-16	45[illegible]	10 3-16	5-06	8.50	11	23,996	22,073
1 5-8	42[illegible]	10 13-16	5-06	9.25	11	25,510	23,468
1 11-16	39[illegible]	11 10-16	5-06	10.00	11	27,024	24,863
1 3-4	36[illegible]	12 7-16	5-06	10.75	11	28,538	26,258
1 13-16	34[illegible]	13 4-16	5-06	11.50	11	30,052	27,653
1 7-8	32[illegible]	14 1-16	5-06	12.25	11	31,566	29,048
1 15-16	30[illegible]	14 13-16	5-06	13.00	11	33,080	30,443
2	28[illegible]	15 10-16	5-06	13.75	11	34,594	31,838
2 1-16	26[illegible]	16 7-16	5-06	14.50	11	36,108	33,233
2 1-8	25[illegible]	17 4-16	5-06	15.25	11	38,115	35,035
2 3-16	24[illegible]	18 1-16	5-06	16.00	11	40,811	37,605
2 1-4	23[illegible]	18 13-16	5-06	16.75	11	41,864	38,917
2 5-16	22[illegible]	19 10-16	5-06	17.50	11	43,378	40,229
2 3-8	21[illegible]	20 7-16	5-06	18.25	11	44,892	41,541
2 7-16	20[illegible]	21 4-16	5-06	19.00	11	46,406	42,853
2 1-2	19[illegible]	22 1-16	5-06	19.75	11	47,920	44,165
2 9-16	18[illegible]	22 13-16	5-06	20.50	11	49,434	45,477
2 5-8	17[illegible]	23 10-16	5-06	21.25	11	50,948	46,789
2 11-16	16[illegible]	24 7-16	5-06	22.00	11	52,462	48,101
2 3-4	15[illegible]	25 4-16	5-06	22.75	11	53,976	49,413
2 13-16	14[illegible]	26 1-16	5-06	23.50	11	55,490	50,725
2 7-8	13[illegible]	26 13-16	5-06	24.25	11	57,004	52,037
2 15-16	12[illegible]	27 10-16	5-06	25.00	11	58,518	53,349
3	11[illegible]	28 7-16	5-06	25.75	11	60,032	54,661
3 1-16	10[illegible]	29 4-16	5-06	26.50	11	61,546	55,973
3 1-8	9[illegible]	30 1-16	5-06	27.25	11	63,060	57,285
3 3-16	9[illegible]	30 13-16	5-06	28.00	11	64,574	58,597

We have found that, when made from the same material, the large bars possess less strength in proportion to their areas than the small ones, as opposed to steady strains, and generally much less absolute power to resist sudden strains, and that through the greater amount of work which it receives, the bar of 1⅝ inches in diameter is, upon an average, fully 4000 pounds per square inch stronger than the 2-inch bar. If the two bars, 2-inch and 1⅝-inch, were equally valuable in every respect for cable, and both in link form developed the same percentage of the bar's strength, say 163 per cent., the strength of the 1⅝-inch cable would be 182,600 pounds, which is 71 per cent. of that of the 2-inch, viz., 256,000 pounds, while its weight, 23,996 pounds, would be but 66.4 per cent. of that of the 2-inch, viz., 36,125 pounds. It is also more than probable that the greater work given to the 1⅝-inch will have so increased its ductility that its power to resist sudden strains will prove greater than that of the 2-inch cable. These views are borne out by many of our experiments. Irregularity in strength is a great fault in cable iron, and is more apt to occur in the large than in the small bars. One reason for this is that irregularity in heating the piles produces irregularity in

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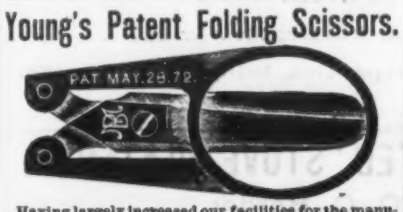

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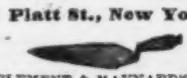

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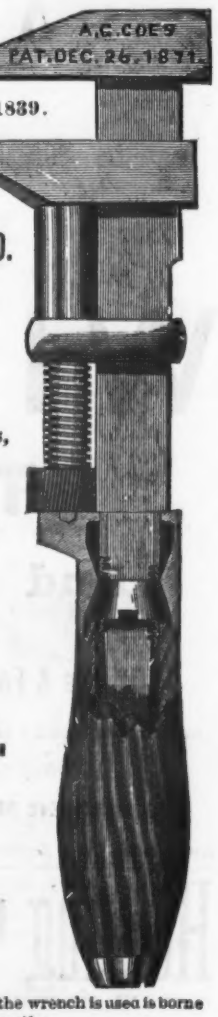

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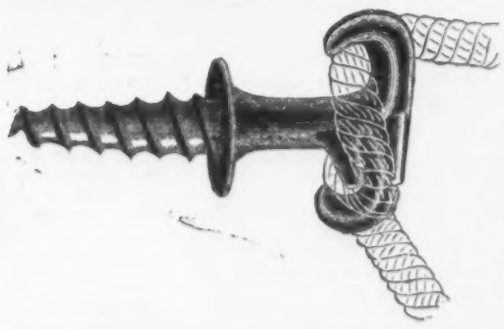

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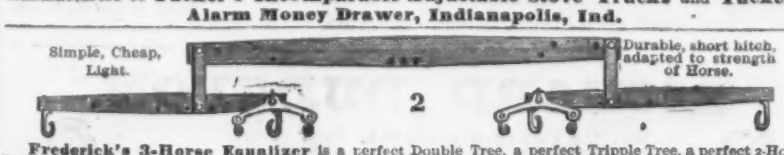

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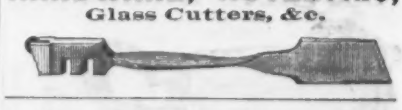

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1700. 1875.

Solid Cast Steel Pump Augers

Solid Cast Steel Augers & Reamers

For Boring PUMP LOGS. All sizes in stock Socket Shanks, Ring Handles, and Connecting Rods for the above to order. Also Tenoning Tools for joining log ends. Coopers' and Slaters' Tools, Tool Chests. Tools for all trades a specialty.

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Established 1857.

Manufacturers of Patent Scandinavian or Jail Locks. Brass Pad Locks for Railroads and Switches. Also Patent Stationary R. R. Car Door Locks. Patent Piano and Sewing Machine Locks.

141 to 145 Railroad Avenue, NEWARK, N. J.

Illustrated Catalogue sent to the trade on application.

MACHINE MOULDED MILL GEARING,

AS ACCURATE AS CUT GEARING.

AND MORE DURABLE IN USE.

Saves Time and Expensive Patterns,

SHAFTING, PULLEYS AND HANGERS,

A SPECIALTY,

LEFFEL TURBINE WATER WHEELS,

STEAM ENGINES AND BOILERS,

MIXERS FOR FERTILIZERS AND CHEMICALS.

POOLE & HUNT Baltimore.

Wilson Bohannan,

Manufacturer of Patent

BRASS PAD LOCKS

For Railroad Switches, Freight Cars, and the Hardware Trade. All sizes, with Brass and Steel Keys, with and without chains.

Patent Horizontal Rim Cylinder Night Latch.

Self-adjusting to doors of any thickness, with Patent Stop and Drawer Back Knob RIGHT OR LEFT HAND.

PASSENGER CAR LOCKS, Bronzed, Nickel-Plated and Japanned.

Catalogues and Samples sent upon application. BROOKLYN, N. Y.

strength, and to this the large bars are more greatly exposed than the small ones. Irregularity in the workmanship by which the links are manufactured also produces irregular strength in the cable. To this the larger bars are exposed to a greater extent than the smaller ones; the weld is less apt to be perfect. Finally, if the cable be finished without any accidental defect, the proof of the 2-inch so far exceeds that of the 1⅝-inch in proportion to its strength, that it is possible that the strength it may have had will be lowered by it. For the reasons assigned we are of the opinion that the margin of safety secured by the use of a cable of 1⅝-inch iron, weighing 12 tons, is equally as great as by the use of the 2-inch, weighing 18 tons.

COMPARISON OF TENSILE TESTS OF CABLE LINKS AND OF BARS FROM WHICH LINKS WERE MADE.

It was considered that if there existed, as seemed probable, a relationship between the strength and other properties of the round bar and those of the links made from it, it would be valuable to determine such relationship, and to find to how great an extent it could be depended upon and within what margins it existed, inasmuch as the simple and inexpensive test of tension upon a portion of a bar would provide data by which the probable strength of a cable made from it could be judged. Tables of the results of our tests have been prepared for the purpose of developing this relationship and finding its margins.

We find that with iron of moderate tenacity and with good welding properties, the percentage of the bar's strength, which is carried with great uniformity into the link, is from 160 to 175 per cent.; that with irons of unsuitable qualities this percentage is frequently low and frequently high, it being very irregular, and averages of less than 155 per cent., made up of very irregular factors, are common, and that with the best chain iron, although there may be links which develop over 175 per cent., such cases are rare.

(To be continued.)

INDUSTRIAL ITEMS.

MAINE.

The property of the Portland Rolling Mills, consisting of real estate, machinery, fixtures and tools, is to be offered at auction sale on Tuesday, September 30th. This desirable piece of manufacturing property is situated in the town of Cape Elizabeth, in close proximity to the city of Portland, and possesses superior facilities for shipments by water and rail.

NEW HAMPSHIRE.

The new Amory Mill at Manchester will use two steel tubular boilers manufactured by Richard Dobbins, of Lowell, and set with the Jarvis furnace.

The foundry and machine shops of S. C. Forsaith & Co. at Manchester were not affected by the recent fire which destroyed their planing mill, and are running as usual.

MASSACHUSETTS.

The principal industries of Taunton are now in a decidedly flourishing condition. The two great locomotive companies have orders enough on hand to last them far into 1880. Other large manufactories are running full blast, and the outlook in all the cotton and iron interests of the city is bright.

At the annual meeting of the Johnson Manufacturing Company of North Adams, the following were elected: President, G. Johnson; treasurer, Wm. G. Johnson; clerk, A. M. Tinker; Directors, G. Johnson, Wm. G. Johnson, A. M. Einker, John Parkhill.

Richard Dobbins, boiler manufacturer, Lowell, is making ten steel tubular boilers for the Lawrence Manufacturing Company, of Lowell. They will be set with the Jarvis furnace.

The Alden Emery Company, of South Walpole, have put in a new turbine water wheel and reset their boiler with the Jarvis furnace.

For the week ending September 10th, there were shipped from South Abington 804 boxes, 41 cases and 36 kegs of tacks, nails, shanks and eyelets.

The great water-wheel test at the Holyoke Water-Power Company's flume will begin October 1, whether the parties have all arrived or not. Nine wheels are now on the ground, representing 7 companies, and it is thought that some 14 or 15 concerns will take part in the test

RHODE ISLAND.

The Rhode Island Locomotive Works at Providence are full of work, including large orders from the Northwest

NEW YORK.

The Albany stove foundries some days send 200, some days 400 and some days 900 stoves to New York. The daily production of the foundries is as follows:

	Tons.
Perry & Co.	30
Rathbone, Sard & Co.	25
Ransom Stove Works	15
J. Van Wormer & Co.	8
S. B. McCoy	8
Albany Stove Co	6
Wm. Doyle	4
Littlefield Stove Co	4
Total	100

Perry & Co.'s production is partly made at Sing Sing. The heavy trade is for New York State and the West. Prices have advanced 10 to 15 per cent. and wages from 15 to 20 per cent. Iron in Albany is $28. The foundries are having and are expecting a large trade.

While the mills of the Albany and Rensselaer Iron and Steel Company are very busy in all departments, it is not true that the company have orders a year ahead. They are producing over 250 tons of steel rails and over 100 tons finished merchant iron per day, besides all the merchant steel their 18, 16 and 9 feet trains can handle. The company also are turning out about 30 tons of railroad spikes and rivets. Two thousand men are employed in the establishment.

CONNECTICUT.

The Miller Bros. Cutlery Company have already contracted for the enlargement of their establishment sufficiently to double their present capacity, which is to work 150 men. They have been unable since Feb. 1 to furnish more than half of the goods ordered from them. They consider the large and increasing demand for their goods due not so much to the general improvement in business as to the fact that they are making a line of solid back knives which have been received very favorably by the trade in all sections of the country.

The Underwood Belting Company have started up their works at Rockville.

PENNSYLVANIA.

The Penn Hardware Company, Reading, intend to increase the wages of the molders on and after the first of next month, and stated that this was not brought about by any demand of their men. This company have leased and yesterday put in operation the foundry on Canal below Spruce street. It is the intention of the company to operate this exclusively for the manufacture of the heavier and cheaper grades of building hardware. Their large works, about one block above, are running on full time and with a full complement of men, being fairly overcrowed with work. About 175 hands are now employed by the company in the manufacture of their varied line of builders and miscellaneous hardware.

The National Association of Charcoal Iron Manufacturers met last week in Philadelphia. At the last meeting, held during the month of July, a committee was appointed to draft a constitution and by-laws of the Association, and to nominate officers for the permanent organization with instructions to report to-day. There were present representatives from a large number of charcoal manufacturing establishments throughout the country. The chair was occupied by the temporary chairman, Robert Valentine, of the Bellefonte Iron Company. The charcoal iron workers present were Millard Warner, of the Tecumseh Iron Company, of Alabama; A. McAllister, representing John Roger, owner of the Springfield Farnace, Pa.; general D. Taylor, of the Woodstock Iron Company, Ala.; E. B. Witlard, Pine Grove Furnace and Ohio Furnace, Ohio; J. C. Fuller, president South Mountain Iron Company, Pinegrove Furnace and Laurel Forge; Joshua Hunsicker, Maidencreek Furnace, Berks County, Pa.; J. W. Mumpher, Barrie Furnace, Pa.; B. Lauth, Howard Iron Works, Pa.; A. G. Curtin, Jr., of the Eagle Iron Works; McCoy & Linn, of the Milesburg Iron Works, Center County, Pa.; S. A. Johnson represents the Black River Iron and Mining Company's Furnace, at Bowville, N. S.; S. R. Schmucker for John Roger & Cove Forge, Blair County, Pa.; Seidel Bros., Perry Forge, Maryville, Perry County, Pa.; Samuel Islet, of Yellow Springs, Blair County, Pa.; Charles Campbell, of the Hecla Iron and Mining Company and Charcoal Iron Company; Robert Valentine, Bellefonte Iron Works; Horace Wave, Shelby Iron Company; Colonel John Lapsley, of Alabama; E. M. Valentine, No. 265 South Fourth street, Philadelphia; C. E. Coffin, Muirkirk Furnace, Maryland. The committee referred to reported a preamble and constitution, which were adopted.

The Cambria Iron Company recently completed negotiations with and leased 100 coke ovens from the Connellsville Gas Company. The ovens are situated in Dunbar township, Fayette County. The iron company propose to build 400 additional ovens and 112 new dwelling houses, the gas company to furnish the means and the property to revert to the latter at the expiration of the lease. The report that the Cambria Iron Company have leased the Rodman Furnace property is denied in toto by the company.

The Warwick Iron Company shipped week before last from the mines at Boyertown 85 cars, or 425 tons, of iron ore. J. Bechtel & Co., during the same week, shipped to Philadelphia from their plumbago mines 64 tons of plumbago.

The Johnstown *Tribune* denies that any paddlers from the Solar Hoop Mills, Pittsburgh, obtained employment recently in the Cambria Works.

At the Scott Foundry, Reading, work is very plentiful, and the steam forge of the Reading Iron Company is in constant operation.

The Reading Railroad Company, in view of the extensive iron traffic, have increased the car service by adding 50 per cent. to the allowance of pig metal shipments.

At an election for officers for the Altoona Iron Company, held on Tuesday evening, the 16th, the following were chosen for the current year: President, Dr. S. C. Baker; secretary and treasurer, William M. Wheatley; directors, John Fullerton, of Philadelphia; James Gardner, of Hollidaysburg; John P. Levan, Dr. S. C. Baker, Robert Smiley, D. K. Ramey and Thomas McCauley, of Altoona. The company are doing a thriving and profitable business, having orders for all the iron they can possibly turn out. The works have a full force, working double turn.

The Crane Iron Company, Catasauqua, have three furnaces in blast; one lining, which is expected to be ready for the blast about October 1; one torn down, to be rebuilt in the most modern style, with fire-bricks, stoves, iron cases, &c., and one idle.

Grove Brothers, Danville, have ordered the fire-brick for their Columbia Furnace No. 2. If the iron business continues to improve, the furnace will be put in blast this fall.

The Thorndale Iron Works at Chester are running their puddlers night and day, their plate mill only in the day time, and do not care for orders for future delivery.

The Glendower Iron Works, Danville, are adding two new puddling furnaces.

There is being erected at the Reading Railroad rail mill, Reading, a punching machine weighing 11 tons and costing $2600. The punch was made at the establishment of W. B. Bement & Son, Philadelphia.

PITTSBURGH AND VICINITY.

Several Belgians arrived at Wood's Run last week, and have started work at Lewis, Oliver & Phillips' lower mill. They are all laborers.

Graff, Bennett & Co.'s iron works at Millvale borough have started up double turn.

The Ætna Rolling Mill (Spang, Chalfant

H. D. SMITH & CO.,

Plantsville, Conn.,

Manufacturers of the

BEST QUALITY CARRIAGE MAKERS' HARDWARE.

Manufacture the Largest Variety of Forged Carriage Irons of Best Material and Workmanship.

PRICES LOW FOR QUALITY OF WORK FURNISHED.

SEND FOR PRICE LIST.

SARANAC HORSE NAIL CO.

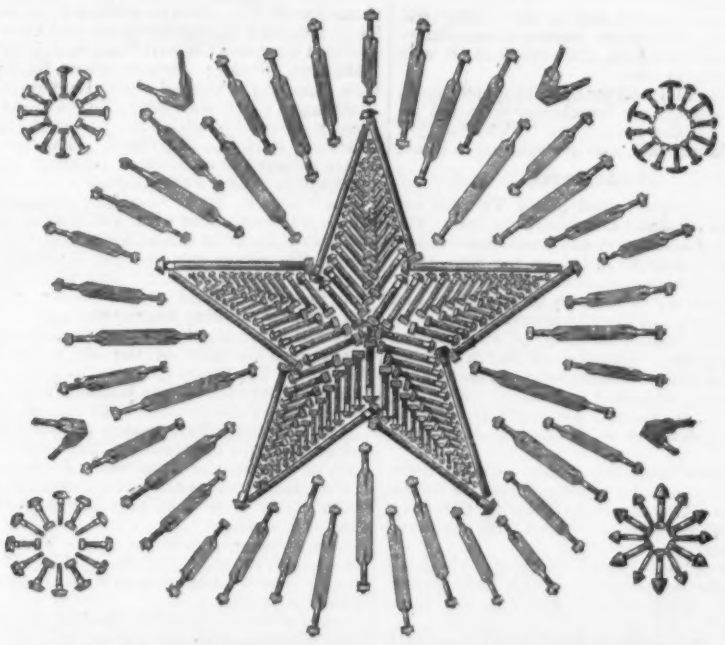
Polished or Blued Horse Nails, Hammered and Finished.

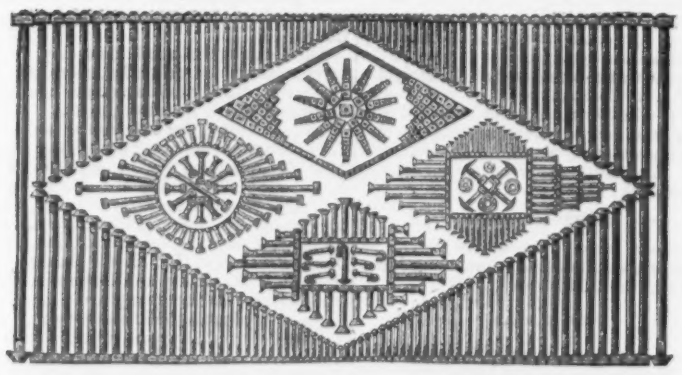
The Saranac Nails are hammered hot and the finishing and pointing are done cold. Quality is fully guaranteed. For sale by all leading iron and hardware houses.

S. P. BOWEN, President and Treasurer. **J. W. LYNDE, Secretary.**

PLATTSBURG, N. Y.

STERLING & CO., Agents, 7 and 9 Cliff Street, New York.





Norway and Charcoal Iron Carriage Bolts, Tire and Fancy Head Bolts, "Star" Axle Clips. Quality guaranteed. Finish unexcelled.

TOWNSEND, WILSON & HUBBARD.

2301 Cherry Street, Philadelphia, Pa.

CHAMPION
HOG RINGER
RINGS and HOLDER.
Only double Ring ever invented. The only Ring that will effectually keep Hogs from rooting. No sharp points in the nose.

EAGLE BILL
CORN HUSKER
is the best Husker in the market. Farmers say it is the best. Use no other.

BROWN'S
HOG AND PIG
RINGER and RINGS.
Only single Ring in the market that closes on the outside of the nose. No sharp points in the nose to keep it sore.

Ringers, 75c. Rings, 40c. 100. Holders, 75c. Huskers, 15c.

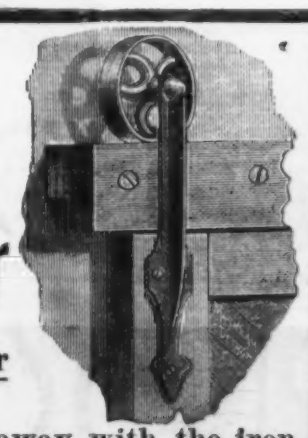
CHAMBERS, BERING & QUINLAN, Exclusive Manufacturers, Decatur, Ill.

O. D. DANA, N. E. Agt.

BARBER'S
PATENT
COUNTERSINK.
Diploma awarded at Mechanics' Fair, Boston, 1878. Hole bored any depth, and countersunk for any size screw at one operation. $2 per doz.; discount in quantity. D. F. BARBER, 1321 Washington St., Boston.

WM. ESTERBROOK,
Wholesale Manufacturer of
Coal Hods,
311 Cherry St., PHILADELPHIA.

Patented April 30th, 1878.
Re-issued July 8th, 1879.



The Kidder

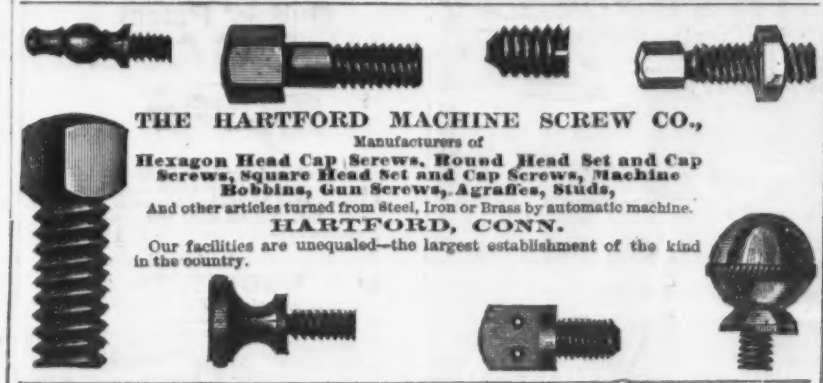
THE

Improved Barn Door Hanger,

With Wood Track. It does away with the iron rail, and cannot be thrown off the track, having a flat-faced wheel one inch wide. It runs as easily with less noise and can be put up in less time than any other Hanger made. Track made solid or of two pieces. For sale by the wholesale trade generally, and the

KIDDER SLIDE DOOR HANGER CO.,

Sole Manufacturers. ROMEO, MICH.



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Manufacturers of

Hexagon Head Cap Screws, Round Head Set and Cap Screws, Square Head Set and Cap Screws, Machine Robbins, Gun Screws, Agraffes, Studs,

And other articles turned from Steel, Iron or Brass by automatic machine.

HARTFORD, CONN.

Our facilities are unequaled—the largest establishment of the kind in the country.

HALL'S PATENT

DOUBLE COMPOUND LEVER CUTTING NIPPERS.

NEAT, HANDY, POWERFUL AND DURABLE.

Of the many Cutting Nippers heretofore placed on the market, not one has supplied either of the two great needs long felt by all who use them, viz.: 1st. Increased power without a clumsy and expensive increase of size. 2d. That the construction of the Nipper should be such that any damage to the cutting jaw or handle, from wear or accident, could be repaired.

The HALL NIPPER meets these requirements fully, being constructed as shown in the cut, and made perfectly interchangeable in all its parts; a jaw, handle, or any other part, can be readily removed and replaced without trouble at a very trifling cost.

These Nippers are made entirely of the very finest quality of steel, made expressly for them, the different parts being drop-forged by the Colt's Fire Arms Co., of Hartford, Conn., which is a sufficient guarantee of the excellence of the work.

This Nipper gives greater cutting power than any Nipper ever made. The accidental fracture of any part does not render the tool worthless, as it can be obtained at the cost of a few cents, and replaced without trouble, every part being perfectly interhangeable. Every pair warranted.

Manufactured by **THE INTERCHANGEABLE TOOL COMPANY,** of New York.

Manufacturers of Special Tools and Machines on the Interchangeable System.

All orders should be addressed to

PETER A. FRASSE & CO. Sole Agents, 95 Fulton Street, New York.

The Leading Wringer of America.

SIMPSON & GAULT,

(Peerless Wringer Co.)

New York Office, 79 Chambers St.

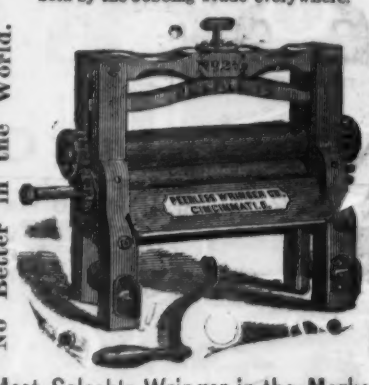
European Offices, *Place Vendome, Paris.* *7 Poultry, London.*

Office and Factory,
CINCINNATI, OHIO.

PEERLESS
Clothes Wringers,

Sold by the Jobbing Trade everywhere.

No Better in the World.



Strongest and Handsomest.

Most Saleable Wringer in the Market.
TRY A SAMPLE ORDER.

R. COOK & SONS,

Manufacturers of

Carriage & Wagon AXLES,

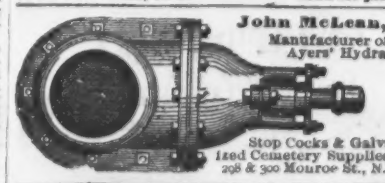
WINSTED, CONN.

ESTABLISHED 1839.

AXLES

All kinds Wagon & Carriage Axles

Manufactured by the
LAMBERTVILLE IRON WORKS,
LAMBERTVILLE, N. J. Send for prices.



John McLean,
Manufacturer of
Ayers' Hydrants
Stop Cocks & Galvanized Cemetery Supplies.
298 & 300 Monroe St., N. Y.

LINEN HOSE.

Sizes, 1½ inch 20¢.; 2 inch 25¢.; 2½ inch 29¢ per foot, subject to large discount.

For Price Lists of all sizes of Plain and Rubber Lined Hose, address,

EUREKA FIRE HOSE CO.,
13 Barclay Street, New York.

& Co.) is running double turn in all departments on sheets, plates, rods and tubing.

The Bell Telephone Company have just received an invoice of 10 tons of telegraph wire from the Gautier Steel Company, Limited, Johnstown.

The Pittsburgh Chain Company, at New Brighton, are running full on orders that will keep them busy until January 1, 1880.

The United States Tin Plate Works, at Demmler, on the Baltimore and Ohio Railroad, have more to do than they can get through with comfortably. Two of the sheet rolls are running triple turns of eight hours each. The establishment now employs about 160 men and boys. The tin department is not running on account of its unprofitableness.

Messrs. Chess, Smyth & Co. are running full in their nail department. The recent advance having stimulated trade, nails are being sold at full price.

Atterbury's new glass factory, on Carson street, South Side, near the railroad bridge, in course of erection, will be one of the most convenient factories in the country. The stone foundation, 15 feet above the ground, has been completed, and the timber framework for the furnace room has been placed in position. The work of erecting the 11-pot glass melting furnace has also been commenced. The new factory will have the largest packing and finishing room in the country. Its dimensions will be 53 by 180 feet.

The five boiling and scrap furnaces of the new rolling mill at McKeesport are in full blast and are doing well.

Messrs. Dithridge & Co. are running two furnaces full time, one on flint chimneys and the other on their new "crystalloid" ware.

OHIO.

The Lawrence Iron Works Company, at Ironton, are running double throughout their entire works, and are full of orders up to December. They will book no orders for delivery before December 1, except small orders for local trade. Offers for iron are being made above card rates for delivery after December 1.

The furnaces about Ironton are generally declining to book orders for mill iron, and have none on hand.

The Ohio Bridge and Iron Works, formerly at Lancaster, are putting up new shops at Urbana.

The Monitor Furnace, at Ironton, is making 7½ tons of good No. 1 cold-blast car-wheel iron per day.

ILLINOIS.

McDonald & Co., of Chicago, are erecting a fine three-story building to be used for steel manufacturing purposes.

The white lead and oil works of D. B. Shipman & Co., at Chicago, are undergoing extensive alterations.

Collins & Burgie have resumed operations at their Chicago stove works, giving employment to 200 hands.

KENTUCKY.

The Mount Savage Furnace blew in last week after a stoppage of one week to put in a new hearth.

The Louisville Car Works have purchased from the Estelle Furnace at Fitchburg, from 600 to 800 tons of iron at $30, cash, at Hedges Station, or $31 in Louisville.

The Pennsylvania Furnace at Riverton is doing well, making daily 11 tons of strictly No. 1 iron. Her blast this year will consist of only 1000 tons.

The Charlotte Furnace is doing better than ever before, making 12 tons No. 1 iron per 24 hours.

MISSOURI.

The Western Glass Bending Works, St. Louis, are arranging to manufacture muslin glass in connection with glass bending.

MICHIGAN.

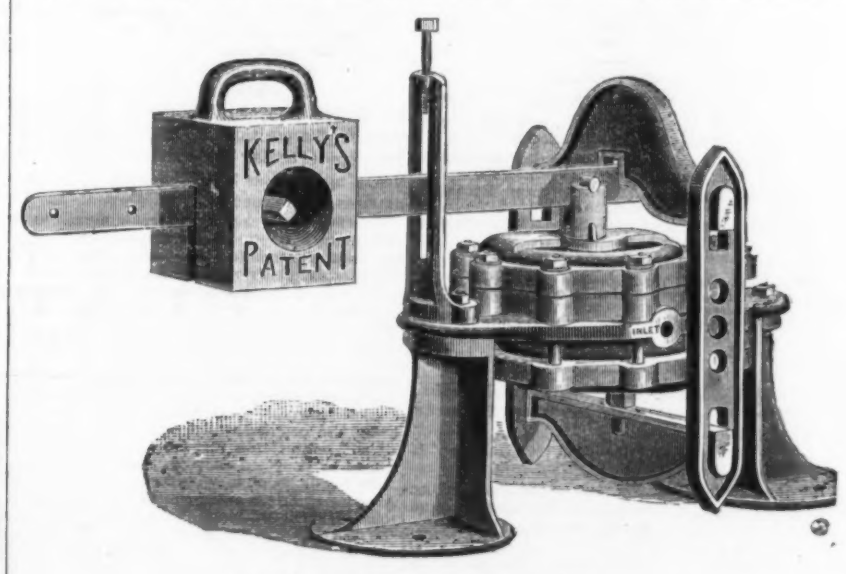
The Marquette *Mining Journal* says: The blowing engines and other machinery once in use at the Greenwood Furnace have been sold by the assignee of the Michigan Iron Company to the Carp River Iron Company, and will be removed to the peat furnace at Ishpeming, and there again be made to do duty. The engines and most of the machinery of the peat furnace have been utilized for mine work, and the lessee gets hold of very little else than the bare stack.

The Depere *News* says that No. 2 stack of the Fox River Iron Co.'s furnaces at that place has been running since the middle of last December on a variety of Lake Superior and Menominee range ores, and is good for a run of at least six months more. The product is from 22 to 25 tons per day, all foundry brands. The company have an ample fuel supply, and everything in and about the furnace is indicative of the most careful and intelligent management.

A Novelty in Stamped Ware—Enameled Dinner Plate.—The London *Ironmonger* of August 16 gives an account of a novelty in dinner plates, brought out by Messrs. Jones Brothers, of Wolverhampton, England. The new plate is of wrought iron stamped into shape, and covered with a vitreous enamel or porcelain on both sides. The back of the plate is blue and the inside white. In the rim there are two indentations made for the purpose of holding the salt, pepper or mustard, as the case may be. While we do not suppose that anything handsome could be expected of plates of this kind, yet it is no doubt possible to make a very durable and light plate, suitable for hotel and restaurant service and also for ship use. Such plates would also be found valuable on the plains and in the forests, where the ordinary ware, both heavy and brittle, cannot be conveniently carried.

Steam Damper Regulator.

With a view to providing the means for a better automatic regulation of the air supply for consuming the fuel under steam boilers, Mr. Wm. E. Kelly, of New Brunswick, N. J., has devised and manufactures a damper regulator, which is shown in the accompanying engraving. It is constructed to vary the section of the stack by opening and closing the damper, and therefore increasing or decreasing the activity of combustion and the generation of steam, as a greater or smaller supply of the latter is wanted by the engine. The steam in the boiler is made to act upon two rubber diaphragms of three-ply rubber packing, which, as their motion is only very slight, wear out but slowly. The steam enters through the inlet shown in the engraving, and, passing into the space between the diaphragms, lifts the upper one which presses against the lever. The lower diaphragm is forced downward and carries with it the rod and crosspiece, which by pivots carries down the lever, thus having the same effect upon it as the upper one. This gives it considerable power, while the movement of the diaphragms is but small. The movement of the lever is transferred to the damper, which thus can be made to close off the draft as soon as a certain limit of pressure to which it can be set is reached.



KELLY'S IMPROVED DAMPER REGULATOR.

MINING AND MINERAL ITEMS.

IRON.

At the Bessemer iron mine, Lake Superior, a new plant of machinery, consisting of a boiler, engine, hoisting drum and crane have just been put in place. The mine is turning out a liberal product, and the owners have been working a new opening all summer, which is the richest part of the mine—a large deposit of soft hematite near the surface, which requires no hoisting.

Iron ore yielding 47 per cent. of iron has been discovered on Smith's Creek, about two miles from Waynesburg, Green County, Pa.

The total Lake Superior shipments of ore for the week ending August 27, are given at 37,584 gross tons—a very considerable falling off from those of the week immediately preceding.

COPPER.

Experts have recently examined the copper lode at the Douglass Mine, Bluehill, Me., and have pronounced so decided an opinion in favor of its richness and its extent that capitalists have promptly furnished the means to develop it and on a large scale.

PRECIOUS METALS.

A silver mine has been opened at Corinna, Me. The first assay of surface ore shows $9 of gold and 37 ounces of silver, lead and copper per ton. The last assay made since sinking the shafts to the depth of 11 feet shows $10 of gold and 68 ounces of silver, besides lead and copper. Persons are prospecting in Corinna and St. Albans with good success.

The Whitehall gold mine, near Fredericksburg, Va., formerly owned by Commodore Stockton, has been purchased by Boston capitalists, and operations will be resumed October 1.

S. Bechtel, at Fritztown, Pa., has erected an engine at Cushion Hill, to be used in digging for silver ore. Several fine specimens of ore have been found.

MISCELLANEOUS.

The newly discovered kaoline, or china clay, mine at Leydard, near Norwich, is now being opened and worked by the Lantern Hill Silex Works. It embraces a hill with a summit 200 feet above the level of the sea. The mine is from 1 to 10 feet below the surface of the earth, and worked by shovel and pick. Prof. Silliman, of Yale, has analyzed it, with the following result: Silicic acid and free silica, 49.95; alumina, 35.80; magnesia, 0.52; iron oxide, 1.65; water combined, 12.34; titanic acid, potash, soda and lime, none; total, 100.16, showing 97.83 pure kaoline.

The Iron Age

AND

Metallurgical Review.

New York, Thursday, September 25, 1879.

DAVID WILLIAMS - - *Publisher and Proprietor.*
JAMES C. EAYLES - - *Editor.*
JOHN S. KING - - - - *Business Manager.*

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REMITTANCES

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CONTENTS.

The most scathing comment on British commercial morality which has lately appeared, comes from Mr. John Ruskin, in one of the foot-notes which he has added to his new edition of "The Stones of Venice." It reads as follows: "Venice is superficially and apparently commercial—at heart passionately heroic and religious; precisely the reverse of modern England, which is superficially and apparently religious, and at heart entirely infidel, cowardly and dishonest." Mr. Ruskin has more than once impaled the dishonesty of British manufacturers on the sharp point of his pen, and will be remembered a generation hence as a prophet to whom the nation might have listened with advantage.

It is reported from Washington that Jacob Reese, of Pittsburgh, has carried his claims for the priority of invention in the dephosphorization of impure pig by the use of lime, before the United States Commissioner of Patents. He founds his claims upon the patents granted to him respectively on the 11th of September, 1866, and June 18, 1867. The case is important, as it involves what promises to be a very valuable patent right, and it is to be hoped that a decision will be as speedily reached as is compatible with proper deliberation. By referring to the full texts of the Thomas patents printed in *The Iron Age* on July 3, July 24, 31 and August 28, our readers will be able to form a very accurate idea of the scope of the invention claimed by Mr. Thomas.

Foreign Iron Trade Prospects.

A substantial basis for confidence in the permanance of the revival of industry and trade in this country, is found in the rapidly improving condition of trade in Great Britain and on the Continent. The London *Times* of a recent date says:

We have every reason to anticipate that the reviving trade will find our capitalists better able to take advantage of it than in former years, in consequence of the cautious attitude they have maintained by refusing to support speculative concerns like so many companies now being launched in Paris. It is to be feared that French speculators and promoters of new companies have been for some time past preparing the way for a serious financial crisis in the Paris market. The course now being pursued in Paris is the one dangerous element which mars the otherwise generally promising commercial prospect. Although the revenue of France has been wonderfully elastic of late years, the grain harvest of this year is a partial failure, and of silk there is not even half an average yield. Circumstances generally seem to show that the French financiers should be taking in sail, instead of adding daily to the list of new companies. As regards England, judging from a very sensible decrease of commercial failures, there is reason to believe that the purging process has at length prepared the way for a revival of prosperity. We hear much less about the depreciation of silver affecting trade with the East. There is a small profit on the shipment of Manchester goods, and miscellaneous metals are going abroad rather more freely. Hemp and jute merchants declare that business has been better during the past few months than at any time for the last five years. There are also signs of coming improvement in the cotton market, the stocks of yarn and goods being smaller than at any time since the American war.

The favorable outlook gives especial interest to the statistics lately published by the Wolverhampton Chamber of Commerce, showing the position of Great Britain's export trade to-day as compared with ten years ago. The Sheffield *Telegraph* summarizes this report as follows:

The most encouraging feature brought out is that all the markets specified are steadily increasing their demand for tin plates. The United States enlarged her order for tin plates from 73,000 tons in 1869 to 108,000 tons last year, notwithstanding that the commodity has to bear a duty of £5. 6/8 per ton. Of course the exports to the United States of all descriptions of iron and of steel show a great falling off. Under no head is this more conspicuous than under railroad iron. Ten years ago we shipped to them close upon 300,000 tons of rails; last year not 1000 tons were sent away. So long as America maintains her tariff of £5. 16/8 on steel rails, and £3. 5/ on iron rails, it cannot be expected that our shipments of rails thither will be of much extent. Our sales to America of the pig and puddled iron are 100,000 tons less than they were, and as to bar, angle and rod iron there is a decline of 50,000 tons. Coming now to Continental nations, the purchases of pig and puddled iron by Germany in 1869—112,000 tons—had last year considerably more than doubled. Our rail exports have increased by 10,000 tons on the decade. Tin plates show up better by 3000 tons. A decrease is apparent in bars, angles, rods, hoops, sheets and plates. France appears as a less valuable customer for nearly all classes of iron and steel. Still, notwithstanding that tin plates have to bear the heaviest duty which France imposes on any class of iron—£5. 6/8 per ton—the shipments of these have considerably augmented. Belgium shows up satisfactorily. Pig and puddled iron shipments in 1878 as against 1869, were an increase of 13,000 tons. With the exception of the inflated years from 1871 to 1874, our exports of rails to Belgium have always been very small. In 1872, 1873 and 1874 they increased enormously, amounting respectively to 20,000, 28,000 and 14,000 tons. Our imports from Belgium of bar, angle and rod iron 10 years ago amounted to little over 1500 tons; last year they stood at 21,000 tons. Holland has augmented her purchases of pig and puddled iron by some 140,000 tons. Rails and some other descriptions of iron show a rapid decrease. Tin plates have increased by over 3000 tons. Russia exhibits an augmentation in pig and puddled iron on the decade of 60,000 tons. Rails have correspondingly declined, and the 246,000 tons sent thence in 1869 have now fallen to 59,880 tons. The statistics regarding hardware and cutlery manifest a decrease touching the United States, Germany, France, Belgium and Holland, but an increase as to Russia, Spain, Portugal and Turkey.

Our own official statistics of British trade, compiled by the Bureau of Statistics at Washington, makes a showing which will be better understood by American readers. The statement of which we speak is that lately issued, showing the exports of Great Britain and Ireland to the United States and other countries for the seven months ended with July. The figures of our trade with Great Britain show a heavy gain in imports. Of pig iron, 32,495 tons were imported during this period, against 14,858 tons for the first seven months of 1878. The imports of bar, bolt, angle and rod iron were 2890 tons, against 1369 tons. Railroad iron shows 8957 tons this year, as compared with 368 tons last year. Hoop and sheet increases from 349 tons in 1878 to 1870 tons in 1879; tin plates declined from 62,476 tons last year to 31,860 tons this year. It will be understood that these figures relate to the first seven months of the two years indicated. Looking over the list as a whole, we find a falling off in some items and an increase in most of them, but not so great as was expected. The total value of the exports from Great Britain and Ireland to all countries during the first seven months of 1878 was £111,061,257; during the corresponding period of 1879 they have aggregated £105,435,115. The total value of imports into Great Britain and Ireland during these periods was: 1878, seven months, £226,279,668; 1879, seven months, £203,287,795. This represents a loss of more than 6 per cent. on the total exports, and a lessening of imports of over 10 per cent. It would be difficult to derive much consolation from these figures, but we are glad to know that the outlook is improving.

In France, it would seem, the action of the rolling mill owners of the North, early in March, in demanding higher prices, has led to a slow, but sustained improvement, which, it is true, has been subject to occasional slight reverses, but has on the whole, especially in some districts, led to results favorable to ironmasters. This appears to be chiefly the case with the makers of the North, who, it is reported, find some trouble in filling the orders which come to them. Founders in Paris and other parts of the country are tolerably busy. We some time since referred to the peculiar advantages which the great Minette iron ore belt of France and Luxemburg offers for the production of steel from cheap low grade pig. The importance of this matter has been quickly recognized by the De Wendels, who have commenced operations, and who intend, in conjunction with Schneider, of Creusot, to start steel making by modern dephosphorizing processes in the vicinity of Longwy. Belgium, on the other hand, is struggling hard to find an outlet for its surplus product in foreign countries. The home market is monopolized by Belgian makers, to whom exclusively the chief buyer, the government, turns over its orders. But the country largely imports foreign crude materials, which are worked into finished products to be exported. Recent statistics show that this movement has so far during this year been in general less strong than in previous times. It may be of interest to state that the Belgian government is reported to have sold no less than 10,000 tons of old iron rails for export to America, at a price equivalent to about $14.75 to $15. Manufacturers, who are generally forced to take this old material as part payment for new supplies, look upon the clearing away of this old stock with favor, and they are hopeful that the revival in this country, in England and in France will aid in creating a better market for their products and in easing their position somewhat. In Germany the unprecedented business depression has continued without any features of encouragement to any industry. The iron trade has not been an exception to the rule. It has continued dull and inactive, and some of the leading districts have been forced into further contraction of output. Attempts have been made to raise the prices of wrought iron, and some Westphalian pig manufacturers are contemplating similar measures, but it is feared that success will not come up to expectations. The tariff has not yet been in operation long enough to manifest its beneficial influence upon trade and prices, and ironmasters are therefore forced to await future developments. In Austria some improvement has been noted of late. The demand for pig iron, it is true, is still unimportant, but, on the other hand, sheet, plates and other shapes are much inquired for. The rail mills have succeeded in maintaining prices by a combination, and it has become the rule with the government officials, controlling a large portion of the railways of the country, to exclude foreign bidders. It is stated, however, that the government officials have, through a prominent newspaper, given the rail manufacturers warning that if attempts were made to further advance prices, the exclusion of foreign makers would be stopped. In their turn, home manufacturers appear to have arrived at an understanding with their German competitors by which a further advance will be made possible. There has been some agitation recently looking to a tariff treaty with Germany on the favored nation basis, but it is urged that the policy of the German government to stop the transit trade would render any advantages gained by a revised tariff useless.

Beginning Work on the Tehuantepec Route.

The work of opening the proposed interoceanic route across the Isthmus of Tehuantepec has actually begun. Word has just been received by the syndicate in New York who are engaged in this grand undertaking, that a corps of engineers have commenced dredging, building wharves, surveying, &c., at the mouth of the Goatzacoalcos River, which forms the harbor at the Gulf terminus of the proposed railroad. This enterprise, it will be remembered, is under the authority of a grant or concession recently obtained from the Mexican Government by Mr. Edward Larned, of Pittsfield, Mass. No time has been lost in organizing for work and providing the requisite means. By the 15th of October a cargo of 2000 tons of steel rails will leave Great Britain, so that the work of construction can go on at once. Other supplies are obtained from Galveston, Pensacola and New York. Included in the various appliances is a powerful steam dredge, purchased in Galveston, to be employed in removing the bar to the Gulf port. About two months will be required to give an entrance for vessels of 24 feet draft. In the latter part of October the first cargo of lumber will arrive from Florida, comprising ties, planking and other materials of construction. Simultaneously, as nearly as the calculation can be made, additional supplies will be received from New York, comprising boilers and stationary engines, carts, wheelbarrows, implements—in short, everything which the contractors will need to push the work with vigor.

As we learn from the chief executive officer of the syndicate, who has personally explored the ground, there can be no question as to the success of the enterprise. H. D. B. Norris has been appointed chief engineer, and W. J. McAlpine, consulting engineer in New York. Mr. Larned, the grantee, had no difficulty whatever in carrying his plans into execution, fourtenths of the interest held by him having been immediately taken by personal friends, while offers to purchase were made far in excess of the entire amount. The grant referred to gives Mr. Larned three years in which to build, the company being bound to construct yearly a section of not less than 63 kilometers, or about 39 miles. The railroad is to start from the mouth of the Goatzacoalcos River and extend to the upper lagoon, near the Pacific Ocean, whence a canal must be excavated to the western extremity of the route. The lagoon, or lake, will form a harbor, to be equipped with wharves, lighthouses, &c. The concession from the Mexican government comprises a land grant of alternate sections three miles square, and control of the harbor at the mouth of the Goatzacoalcos for 99 years; also of the lakes on the Pacific side. At the expiration of this period the road must be surrendered to the government, the latter taking the rolling stock at one-half its appraised valuation and the track at $13,000 per mile.

The history of this project can be briefly stated: In 1877 Mr. Edward Larned and others purchased what is known as the La Sere grant from Simon Stevens, who agreed to have the concession extended to this syndicate. Failing to do so, Mr. Larned ascertained that the Mexican government refused to recognize the former company in any manner whatever, but he succeeded in obtaining an entirely new grant, which was issued June 2, 1879. The friendly disposition of the governors of the two adjoining States of Oaxaca and Vera Cruz was strongly manifested. The former personally aided the measure in its passage through the Mexican Congress, and stated to Mr. Larned that he would supply 20,000 laborers and all necessary provisions in prosecuting the work. In like manner, the governor of Vera Cruz gave his assurance that he would assist to the utmost of his power, believing that the harbor of Goatzacoalcos must eventually become the chief seaport of the republic, as the harbor at Vera Cruz was fast filling up from the effect of northers and shifting sand.

In another column we print one chapter from a history of the anthracite coal trade, written by Mr. P. D. Luther, who sketches the early development of iron making with anthracite as a fuel. His historical researches in this branch of his work have not, by any means, been as extended or as critical as those of Mr. James M. Swank and others, but he publishes selections from some contemporaneous speeches, letters and documents, which will be read with interest. As we have had occasion to remark, Mr. Luther does not seem to have been even ordinarily persevering in his work, or he would not have committed the errors of omission of which he has been guilty. In the whole of his article we fail to find any allusion to one man who co-operated largely in the work of introducing anthracite as a fuel in iron smelting in this country and in Wales, and to whose merits all earlier historians agree in paying tribute. We refer to the venerable David Thomas, who on the 3d of next month will celebrate the eighty-fifth anniversary of his birthday. Mr. Thomas, who now lives in his comfortable and elegant home at Catasauqua, Pa., surrounded by an affectionate family and a throng of devoted friends, is a native of Wales, where he was born in 1704. He entered the iron business early in life, and in 1834 he associated himself with Mr. George Crane, and both together made the first attempts at smelting iron with anthracite and hot blast at Ynscedwin, Wales. It was Mr. Thomas who, at the call of Messrs. White, Hazard and others, Pennsylvanians, came to this country in June, 1839, as one practically acquainted with the use of the intractable fuel. On the 4th of July, 1840, after innumerable delays and difficulties, he successfully blew in the Catasauqua Furnace of the Lehigh Crane Iron Company. Although he was preceded in this country by Geissenheimer, Pott, Baughman, Lyman, Firmstone, Patterson and others, much of the early success and the rapid extension of the manufacture of anthracite iron is due to his energy, determination of purpose, industry and fidelity. He overcame great obstacles and met with much distrust and doubt, which alone a character as unyielding as his could overcome. Mr. Thomas holds a high rank among the men who have contributed by their energy, industry and zeal in building up the great industries of this country, and during his long life has earned and still commands the esteem and admiration of troops of friends.

France is suffering the disadvantages of a heavy adverse trade balance. The total value of the foreign trade of France for the first six months of 1879 is estimated at 3,762,962,000 francs, including 2,232,468,000 francs in imports and 1,530,494,000 francs in exports, or an excess of imports over exports to the value of 701,974,000 francs. Compared with the corresponding period of last year, the present return shows an increase of 285,495,000 francs in the imports, and of 16,581,000 francs in the exports. In the first half of 1878 the value of the food imported was 541,500,000 francs; this item increased to 822,500,000 francs in the first half of the present year. The imports of raw materials for manufactures have increased by 3,500,000 francs. In wines the imports had increased in value from 25,000,000 francs in the first half of 1878, to 45,000,000 francs in the corresponding period this year; while the exports of French manufactures have also increased to the extent of 19,000,000 francs on the same periods.

In a recent consular report from Germany attention is drawn to the fact that American inventors take advantage only in a limited degree of the protection which the new patent laws of Germany offer them. This, it is claimed, is largely due to the fact that the fees, when compared to our own, are excessively high. While undoubtedly barring many Americans, we are inclined to believe that high fees are by no means the chief obstacle which renders the acquisition of German patents by American inventors comparatively rare. We have in former issues of *The Iron Age* pointed out certain provisions of the German patent law relating to priority of publication, and have repeatedly warned against negligence in securing German patents, which must be very promptly taken out. Many applications have been refused on the ground that the German law prohibits the grant of a patent a description of which has been published in the *Official Gazette* of the United States, but there is reason to believe that experience will soon teach inventors and their attorneys the necessity of shaping their course accordingly. It is expected also that, as the German Patent Office is not alone self-sustaining, but is in receipt of revenues exceeding its expenditures, it will soon be able to reduce the fees exacted to reasonable limits. The more prominent disadvantages, which are looked upon by many as constituting the chief obstacles for Americans, are, therefore, progressing to a more favorable issue. One provision of the law, however, which has probably attracted little attention, seems destined to prove very troublesome to American inventors. The German law of 1877 contains a clause embodying the well-known compulsory working of patents within a specified time—three years in the case of Germany—a hampering restriction which legislators in this country have long since abandoned as being impracticable. Experience in Belgium, France and Austria has similarly shown how difficult to enforce and how unjust compulsory working is, and there is every reason to believe that foreigners will suffer in Germany also. A German patent can be revoked by the Patent Office, if the patentee fails to carry it out in Germany within three years from the date of its issue. Now, it would appear that the Patent Office refuses to bind itself by a judicial interpretation of the law, excepting in special cases. This will give rise to much uncertainty as to what really constitutes working of the patent in Germany, and add considerably to the hardships which compulsory working, even if leniently enforced, saddles upon foreign inventors.

Messrs. Bolckow, Vaughan & Co. report good progress with the dephosphorizing experiments, and say they are making good rails from Cleveland pig; but for the first time since the present limited liability company was organized, they have found it advisable to pass the semi-annual dividend. The solution of great problems in metallurgy almost always entails sacrifices, and the unfortunate part of it is that while the world stands ready to profit by such sacrifices, they are rarely appreciated at their true value. However, the world moves, and there will always be those upon whom "the print of the golden age" is not so deeply stamped that they can spare nothing to aid in promoting progress.

THE AMERICAN INSTITUTE OF MINING ENGINEERS.

Incidents of the Fall Meeting at Montreal.

The first foreign meeting of the American Institute of Mining Engineers, held last week in Montreal, was in many respects a great success. The May and September meetings are not commonly conspicuous for scientific interest, as the excursions and entertainments sadly interfere with business of a more serious kind, less entertaining to the ladies. However, the Montreal meeting was not lacking in scientific interest, while it was decidedly a success as regards its entertainments and the hospitalities of the good people of Montreal.

The headquarters of the Institute was at the Windsor Hotel, which is sufficiently interesting to merit passing notice. It is one of the largest and most magnificent hotels on this continent, and while its decoration is not in all respects in good taste, its gorgeousness surprises the traveler who remembers past experiences in the hotels of this and other Canadian cities. It is stated that the Windsor is largely supported by the patronage of young people on their bridal tours. It is admirably adapted for this, as its frescoes and ornaments will give the happy beginners in married life roseate views of the future, while experience of its internal economy will teach them the fact, to be learned sooner or later—and best learned sooner—that one of the most difficult things to secure in this world is good service. The staff of dining-room waiters seems to have been supplied largely from some charitable institution for the support of aged and indigent men. These poor old grey-beards hobble around and do the best they can, but it cannot be said they make first-class waiters. But we started out to give a brief description of the Windsor.

THE WINDSOR HOTEL

is built upon the healthy upper plateau of the city, and occupies an entire block, bounded by Peel, Dorchester and Stanley streets. The ladies' entrance opens upon Dorchester street, and is protected from rain and sun by a broad canopy, which stretches to the street. In close proximity to the entrance are the waiting-rooms for guests and the ladies' reception room, which

is elaborately furnished and decorated in Pompeian style, and is undoubtedly the gem of the house.

The main entrance to the hotel is on Peel street and leads directly into the grand rotunda, wherein are situated the office proper, the ticket and telegraph offices, &c. Occupying a position in the open space within the square of buildings, the rotunda has a dome roof, elegantly frescoed. To the left of the main entrance is the gentlemen's waiting-room, which is frescoed and furnished in strictly Egyptian style, and is a very "swell" apartment.

The main staircase ascends from the junction of the ladies' entrance hall with the rotunda to the grand promenade, on the second flat, which is 180 feet long by 30 wide, passing in front of the drawing-rooms to the main dining-room, which is as unique and gorgeous in its decorations and architecture as it is commanding in hight and size. It is 112 feet long by 52 feet wide. The ceiling is 27 feet high; the floor is of marble; the walls are surrounded by 52 columns and pilasters, the bases of black walnut and the shafts of butternut, highly polished. This mammoth banquet chamber is lighted by 13 windows and three large dome lights. Here Almini, of Chicago, has apparently sought to exhaust his pictorial powers. Above the pillars he has painted a series of beautiful landscape views, which entirely circle the hall. They comprise scenes from Great Britain, the Continent and tropical climes. At the east end is a gallery, or band room, which can be shut off from the hall by sliding doors. At the west end of the dining hall is the ladies' ordinary or small dining-room, 60 feet long by 40 in width. This was also decorated by Almini.

On the east side of the promenade, and overlooking Dominion square, are the suite of grand parlors, 100 feet long by 30 wide, fitted up regardless of cost. Adjoining the main parlors are the bridal chamber and parlors. Here Almini has been remarkably successful in his work. The marble work was executed in Montreal, and the furniture of the parlors and first and second floors was brought from New York. The cabinet and art work and decorating is unsurpassed on the continent. The remainder of the hotel proper is given up to bed-rooms *en suite*, with parlors, &c., or single rooms. The corridors are uniformly 12 feet in width, and are bordered with black walnut. The division walls are all of brick, and the floors filled, thus deadening all sounds above and below. Above the sixth story is the observatory, or look-out tower. It has two series of port-holes or windows, the upper ones being 130 feet from the ground. Access can be had to the dome, where a hight of 150 feet is attained.

THE OPENING SESSION AT M'GILL UNIVERSITY.

The institute was called to order shortly after 8 o'clock, on the evening of the 16th, by Dr. T. Sterry Hunt. The attendance was very large, and Molson Hall was well filled. Dr. Hunt, as chairman of the local committee, opened the proceedings by introducing Mayor Rivard, who appeared wearing a stunning gold necklace or bridle, or some kind of an ornament which was understood to be the insignia of his office, though by some benighted Americans it was mistaken for a watch chain. This gentleman, in a very appropriate address, welcomed the Institute to Montreal. He was followed by Principal Dawson, who made a delightful address, which was much appreciated. Principal Dawson is a ripe scholar and a Christian gentleman of rare graces.

President Cox then delivered the address which is customary at the opening of the meetings. As this was the first meeting held outside the United States, he thought that a statement of the objects and purposes of the Institute was especially appropriate. We quote as follows:

The first, and I think by far the most important function of the Institute, and that which really has caused it to grow so quickly and so vigorously, is that it prevents mental waste and stimulates men to intellectual activity, outside of the mere routine business of their profession. There is scarcely an engineer, however limited his practice may have been, who has not made some experiment, met and overcome some difficulty or solved some problem that has not yet been discussed in our technical literature. These may not be of the highest importance, and may have occurred in the practice of dozens of other engineers, but so long as the results obtained have not been reduced to writing and put on record in some well-known work or periodical that is accessible to the profession, they are generally waste products so far as the world at large is concerned, for they may die with the possessor; or, even when they have been carefully preserved by the investigator, may be sold as waste paper by some one into whose hands they may fall, and who will be unable to appreciate their value.

In many cases the course of experiments undertaken requires years, perhaps a lifetime, to bring them to a successful conclusion, and in that case they do not furnish matter for a magazine article. If, however, at any time a member of an association such as ours should think that he had discovered some fact or principle which was theretofore unknown to the world, and which promised important results, at the first meeting thereafter he would call the attention of the members to it in a preliminary note, giving only a general outline of what he had done and of what he proposed to do, reserving details and conclusions for his final paper. Should he, as is often the case, be simply reinvestigating some problem that has already engaged the attention of others, or should some other member be engaged in the same line of study, it would be brought to his attention at once in the discussion that would take place after the reading of the note, and he would be informed of what had already been accomplished, or at least referred to some authority from which he could obtain such information; many of the members would be likely to give him isolated facts, the results of their own experience, which would aid him to explain points about which he was not yet clear. If he should be engaged on some original work which promised to be of value to all, he would be assured of it by the discussion of the subject, and would pursue his investigations with renewed vigor, feeling certain, in the first place, that it was not labor in vain, and, in the second, that he had placed himself on record by the reading of his note and by its publication in the transactions of the Institute, so that no one thereafter could dispute his claim to be the original investigator.

The second, and in my opinion the next most important function of the Institute, is the bringing together of the members of the profession who are scattered far and wide over the whole country, enabling them to become personally acquainted with each other, and thus tending to the formation of a professional standard. Ours is really a lonely profession. The lawyer, the physician, the clergyman, and even the civil and mechanical engineer, reside in most cases in more or less thickly populated parts of the country, where they are brought more or less in contact with other members of their professions, and thus are kept to a certain extent *au courant* with what is being done outside of their own special routine of duties. They are frequently called into consultation with each other, have access to a much larger professional literature, and are constantly brought in contact with educated and cultivated people of all kinds; but the mining engineer, except in special cases, must spend most of his time where his mine or his furnace is located, and these are generally situated far from the centers of civilization, their position being regulated by the existence of the ore or the fuel. The nature of mining enterprises is not such as tends to build up large cultivated societies around the works, so that the engineer is generally thrown upon his own resources, having access to no professional books and periodicals but those in his own library, which in most cases cannot be very numerous, in consequence of the high prices which must be paid for them. But the great increase in the number of mining engineers, the enormous development in this country of all the industries connected with and dependent upon mining, rendered such a condition of affairs no longer possible, and when in May, 1871, a few gentlemen met at Wilkesbarre, Pennsylvania, and organized the American Institute of Mining Engineers, it was at once welcomed by the other members of the profession, and its success was assured from the very beginning.

That it supplies a real want is best shown, I think, by its six volumes of transactions, by the records of its meetings, and by its list of members whose achievements in all branches of mining and the associated industries are well known and recognized in all the civilized countries of the world. There is no doubt that the effect of our meetings, our publications, and of the publicity given to our proceedings, has been to raise the standard of the profession of mining engineering, and to make the public appreciate its importance. The result of bringing together, not as the representatives of rival interests, but socially and informally, the various members of the profession who live far from each other, and being engaged in dissimilar occupations, would, in the ordinary course of events seldom, if ever meet, has been the formation of friendships which are of the strongest character, which will in my own case as in many others, I feel sure, terminate only with life. Another advantage afforded by the meetings, is the opportunity of visiting many of the most important industrial establishments of the country, not only in company with the men who have constructed and are managing them, but also of those who are most competent to criticize them. Another important and agreeable function of the Institute has been the beginning and maintaining of friendly relations with our professional brethren across the water. This, which was so pleasantly and successfully inaugurated at the Centennial, has been kept up without intermission, and scarcely any foreign mining engineer who visits this country for the purpose of examining its resources, fails to avail himself of the facilities offered by our society, and all of our members who have visited Europe since 1876, have found the attention shown to Europeans in America by us have been thoroughly appreciated and returned abroad, and I hope that in this respect the usefulness of the society will increase rather than diminish. There is another function of the Institute which is, perhaps, the most agreeable one, and that is the breaking up of our every-day routine work three times a year and forcing us to lay it down, thus turning our minds into a new channel for about a week at a time. I would, therefore, say that our answer to the question, "What is the *raison d'être* of the American Institute of Mining Engineers?" may be summed us as follows: Our Institute is useful in preventing the immense amount of valuable information which is being accumulated daily by its members and others from being lost, and in placing it in a convenient form at the disposal of the scientific world; in encouraging its members to do original work and to communicate the results thereof to the public; in raising the standard of the profession and in causing the outside world to understand what a mining engineer is; in bringing the various members of the profession together, so that they learn to know and appreciate each other; in giving the members an occasion of visiting, in company with a great number of experts, the various industrial centers of the country and of inspecting the improvements made from time to time; in maintaining pleasant and profitable relations with foreign engineers, and in making a periodical break in our routine duties, and giving us all a week's holiday every three or four months, during which we can talk over together matters connected with our profession in an informal way; and, finally, in forming, cementing and maintaining professional friendships which are, in many cases, the strongest and truest.

Dr. Hunt followed with a few remarks in the same vein, showing how much wider the scope of the institute is than its name indicates, and how, besides mining, it represents chemistry, geology, mineralogy, metallurgy, the mechanic arts and applied science. He then surrendered the chair to President Cox, who called on Dr. Raymond for a paper on "The Zinc Deposits of Southern Missouri." It is our intention to publish this and several other papers of the session as soon as opportunity serves. In this report we can only say of Dr. Raymond's paper that it was very entertaining and instructive, and peculiarly well adapted to the audience.

The members were then shown through the library and collections of the McGill University. This university, founded by Mr. James McGill, a merchant of Montreal, who died on the 19th December, 1813, at the age of 69 years, is the most important educational institution in the Province of Quebec. Not having any children, Mr. McGill determined to devote a large portion of his fortune to some object of benevolence connected with his adopted country, and in his last will, made two years before his decease, he set apart his beautifully-situated seat of Burnside, on the slope of the mountain, with the sum of $40,000, for the formation of a university, one of the colleges of which was to be named the McGill College. The endowment has since been largely increased by subscriptions and benefactions, principally derived from the citizens of Montreal, so that the property and endowments of the university now amount to more than half a million of dollars.

The college buildings are situated on Sherbrooke street. The principal structure consists of a main building, three stories in hight, with two wings connected therewith by corridors. These buildings and corridors, which are built of Montreal limestone, contain the class-rooms of the Faculty of Arts, with its laboratories, museum and library, and the residence of the principal and secretary. To the left of the principal building stands the large and commodious structure, substantially built of Montreal limestone, for the Medical Faculty. This building is three stories in hight, and, besides three large class rooms, has accommodation for a dissecting-room 80 feet in length, a chemical laboratory fitted for 40 students, a museum and library. To the right of the principal building is the meteorological observatory, in which regular observations are maintained in connection with the Dominion system of weather signals.

The Library of McGill University contains upward of 16,000 volumes, not including the separate libraries of the Faculties of Law and Medicine. It contains many valuable and interesting books, and is open to visitors and readers under liberal regulations. It occupies the lower part of the William Molson Hall, which was erected by the gentleman whose name it bears. The museum occupies one of the corridors, and contains large and well-arranged collections in geology, zoology and botany. Among these is a magnificent collection of shells, presented to the university by the late Dr. Philip P. Carpenter, which is placed in a separate fire-proof room. The University also possesses an extensive and valuable philosophical apparatus, and collections of mining and mechanical models.

McGill University is non-denominational in its character, and includes Faculties of Arts, Law and Medicine and a department of applied science. It has about 40 professors and lecturers, and between 300 and 400 students.

TUESDAY'S SESSIONS

were well attended and interesting. They were held in the lecture room of the American Presbyterian Church, Dorchester street. President Cox occupied the chair.

The first paper was that of Prof. Egleston on "A New Law of Metals," which he has discovered by a long continued and important series of experiments on the fatigue of metals. The so-called fatigue of metals arises from two causes: 1. Cold rolling, which produces a cold flow of metals. 2. Shocks, either few, heavy and sudden, or many, slight and frequent. The breaks resulting from these causes indicate that the metals undergo not only a physical, but a chemical change. Some of the physical changes have been noted. The fact that a chemical change takes place has not been noticed heretofore. The speaker noticed that blows on metals produced a change in the color of the metal. Certain letters were punched in steel, and, upon etching, they showed white. The same phenomenon was exhibited in metals that had been cold rolled. The fact of fatigue has been frequently noticed, but that it follows laws, and that rupture is both a physical and chemical phenomenon, is new. The question arises, How can these fatigued metals, rendered useless, be restored? There are two ways: first, by rest; second, by heat. This phenomenon which the speaker called the law of refreshment, is so far as he knows, a new one. It is constant and in nearly all metals. The Professor announced that he was constructing a machine with which to study the law. The only exception to this law of fatigue by shock is in the case of tin, which becomes brittle by rest, though tin can be restored by a very low heat. In answer to a question, Prof. Egleston stated that the chemical change consisted in a change in the condition of the carbon.

The discussion which followed Prof. Egleston's announcement of this law was interesting. Prof. Silliman gave some instances of the operation of the law of fatigue in the case of grape-vine iron and brass wire hung in coils in the laboratory. In answer to a question of Dr. Sterry Hunt, he gave some account of the effect of heat in changing the character of a certain alloy of tin, copper and antimony, which, when first cast, was crystalline and resonant, but lost these characteristics in rolling. The resonance was restored upon heating by plunging into an oil bath of high density. This fact has been largely used in the arts, notably by the Meriden Britannia Company. Dr. Hunt mentioned the well-known fact regarding old Spanish coins that seemed worn entirely smooth, but which were restored so as to bring out the device upon heating. Dr. Raymond suggested that the law was one of alloys—not of metals—and pointed out the similarity of the phenomena described by Prof. Egleston to those witnessed about a blast furnace in pig iron. Prof. Egleston replied that, in the sense Dr. Raymond used the word, all metals were alloys. Mr. Holley asked if Prof. Egleston had examined steel rails that had been cold-straightened as to the gag marks. Prof. Egleston answered that he had, and that they showed the gag mark every time. Mr. Holley stated that the effect of the use of the gag in cold-straightening on the steel rail was a most important question. At Krupp's works there is a fine of about $1.25 for the appearance of gag marks on rails. The most prominent engineers in Europe connected with steel works are searching for some method of straightening rails hot that will do away with this effect from the gag.

The second paper was by Mr. A. L. Holley, on "The Washing of Pig Iron for the Open-hearth and Puddling Processes at Essen." We shall print this paper with the drawings.

Prof. H. S. Munroe read an interesting paper on "Losses in Copper Dressing at Lake Superior," of which the following is an abstract:

The native copper of Lake Superior occurs in veins and in beds of conglomerate and amygdaloid. The product of the vein mines is mostly mass copper, though the vein stuff contains more or less finely disseminated copper, which must be separated by dressing. The product of the conglomerate beds is wholly stamp rock, while the amygdaloid beds yield both masses and stamp rock, the mass copper, however, forming usually but a small percentage of the product. There are now nine large stamp mills in operation, treating over 2600 tons of copper rock per day, and producing about 75 tons of copper every 24 hours. The tailings carry off about 25 tons in the same time. Over $2,000,000 worth of copper is thus lost every year. This great loss is due to the poverty of the copper rock and to the fineness of the copper which it contains. The tailings coming from the jigs contain and carry off fine copper included in the grains of sand, as well as that which is lost in the form of float copper. The slime treatment on the Evans rotary table is very good, the losses being quite small. The loss of float copper from the jigs is due to the imperfect classification of the sands by the hydraulic separator, these sands containing, in some cases, 45 per cent. of slime. The included copper which is carried off in the coarse grains of sand can only be saved by recrushing these sands. In order to release all the copper contained in the conglomerate rocks these sands will have to be reduced to a slime, as Mr. Munroe found that sand fine enough to go through a 50-mesh sieve yielded free copper by vanning when crushed to go through a 100-mesh sieve. Another source of loss is the oxidation of the fine copper in the mine and before it reaches the dressing works. The loss from this cause is much larger than is generally known, and can only be reduced by sending the rock to the mill as soon as possible after it is mined. From some assays made by Prof. Munroe it would seem that freshly mined rock contains about one-tenth of its copper in the form of oxide; by the time it gets to the mill, several months after it is mined, one-third of the copper has oxidized, and in the tailings, after 12 months exposure, only 25 per cent. of the copper remains in the metallic form. Whether this is equally true of other mines, and in all cases, is exceedingly doubtful, and further investigation will be necessary to determine this and to find how far this large loss can best be prevented. Prof. Munroe's paper was illustrated by a large number of assays of copper rock and tailings, and tables of dates and statistics illustrating the advantages and defects of the Lake Superior dressing methods, all of which will be published when his paper appears in the transactions of the Institute, to which publication we must refer those interested for further details of this investigation.

Mr. J. C. Platt, Jr., read a paper entitled, "Notes on Journal Bearings," which we shall give with illustrations in a succeeding issue.

At the afternoon session Prof. John A. Church read a paper on "New Machinery for Concentrating Ores," relating chiefly to Beck's improvements in jigging apparatus, in which the movements and results of the prospector's pan was very closely imitated by steam power.

Mr. John Birkinbine, of Pine Grove Furnace, Pa., read a paper of great interest, which we shall publish in full in our next issue.

Mr. R. P. Rothwell read a paper on the "Silver Sandstones of Southern Utah," which was illustrated with specimens.

In the evening Dr. and Mrs. Hunt were "at home" to the members and ladies and a number of well-known citizens. The evening was much enjoyed by the company.

THURSDAY

was a very busy day, its engagements and pleasures lasting well into Friday morning. The first event was a visit to the Museum of the Geological Survey, through which the visitors were conducted by Mr. A. R. C. Selwyn, the Director of the Survey. The collection having been inspected and much praised, the party were taken for a drive through the Mountain Park, which was greatly enjoyed. After luncheon an afternoon session was held.

Mr. Thomas MacFarlane, of Actonvale, P. Q., read a very interesting and instructive paper on "Silver Islet." He began by stating that mining enterprises in Canada had been uniformly unsuccessful, not because the ore deposits were mere points of mineralogical interest, for the mineral resources must be acknowledged to be very great. The experience gained in mining operations on Silver Islet vein during the last ten years confirms in the main the ideas entertained at the outset regarding its geological relations. The facts developed in working it may be gathered from Mr. Curtis' longitudinal section, published in the *Engineering and Mining Journal* of 21st December, 1878. The dip of the vein is at a very high angle to the southeast, while that of the diorite which it intersects is 75 degrees southwest. It also appears that the vein has been productive only where the diorite formed one or both of its walls, and that, where it intersects the flags entirely outside of the diorite, it is completely barren. Even within the diorite band the vein is not invariably and uniformly productive, as the workings on the seventh, eighth and ninth levels unfortunately show. Should these be found to be the permanent relations of the mine, success will, of course, only be found in very deep mining or on a very short vein. It is certainly the fact that silver ore has been found, just under such relations, elsewhere in the district, but it is also the case that such ore has not yet given rise to any one profitable mine. It is quite possible, however, that by exploring the vein on its strike, especially to the northeast, some other of the numerous dykes of this location might be intersected, which might cause the vein to be ore-bearing at the line of intersection. It is interesting to note that the relations of the Silver Islet vein just described bear a close analogy to those of the silver veins of Kongsberg in Norway, the "fahlbands" there bearing the same relation to the ordinary gneiss which the diorite band at Silver Islet bears to the horizontal strata adjoining. A very noticeable feature of the Silver Islet vein is its continuity in depth. At the lowest point worked in July, 1877, more than 600 feet beneath the lake, Mr. MacFarlane observed another vein both as distinct and well defined as it appeared on the surface.

One of the strangest phenomena which the exploration of Silver Islet vein has yet developed, is the occurrence of inflammable gas in some of the workings. It is difficult to account for the formation of the gas, or for the fact that saline water accompanies it. This is, probably, the first instance on record of the occurrence of such a gas in a silver mine, and it tends to show that the rocks in the neighborhood of Silver Islet are of much more recent age than is generally supposed.

The secretary then read two short papers, one by E. Gybbon Spilsbury, Philadelphia, on "A new Air Condenser," and the other on "An Autographic Transmitting Dynamometer" by William Kent, Pittsburgh.

Prof. Silliman began an interesting and important paper on water gas, but was compelled to leave it unfinished by the arrival of the time for adjournment. It was ordered that the views of any member wishing to discuss Dr. Silliman's paper be printed with the proceedings.

Dr. Raymond, in a happily worded resolution, moved that the secretary be requested to convey the hearty thanks of the Institute to the corporation, officials, citizens and others for the courtesies extended to the visiting members, which had so much conduced to the enjoyment of their stay here. The resolution was carried with enthusiasm.

Mr. J. Fraser Torrance acknowledged the vote of thanks in a few words expressive of his satisfaction that the efforts of the local committee had met with the approval of the visitors.

At 5 o'clock the company left Montreal by train for Lachine, where they boarded the steamer Prince of Wales, and ran down the Lachine Rapids. This was a very exciting, but delightful, experience. It looks as if the feat was extremely perilous, but probably it is not so much so as it seems. It is only necessary to start the steamer right and the water takes her through, though the alleged Indian pilot who sat comfortably smoking a pipe in the wheel-house, got the credit.

In the evening the subscription dinner was given at the Windsor. It is understood that these dinners are not to be reported, which is much to be regretted, as they are delightful entertainments, and are occasions for much display of wit and oratory. The event of the Montreal dinner was the surprise to Dr. Drown. It will be remembered that, at the recent fire which destroyed Pardee Hall of Lafayette College, Dr. Drown lost his valuable professional library, but saved the transactions of the Institute. There was a general desire among the members that his long service and devotion to the work of his office as secretary, as well as his heroic self-sacrifice in this instance, should be remembered, and that the remembrance should take such shape as would enable him to replace, as far as possible, his library. The subscriptions reached the sum of $3000, which was presented by Dr. Raymond, treasurer of the fund, in a way calculated to embarrass the recipient as little as possible. Dr. Drown responded in a very graceful acknowledgment, which, considering all the circumstances of the case, was a memorable success. Among the speakers of the evening were: Prof. Dawson, Prof. Egleston, Mr. Rothwell, Mr. Holley, Prof. Silliman and others.

ON FRIDAY

the forenoon was spent examining the engineering works near Montreal and the harbor. The first stop was at the Victoria Tubular Bridge, which spans the St. Lawrence, giving uninterrupted rail communication between the Eastern States, Canada and the Great West. It is used only for railway transit, and gives the Grand Trunk Railway full control of railway approaches from the East. This great work was completed in 1860, under the superintendence of Robert Stephenson and his associates, and is one and a quarter miles in length, or two miles including the extensions. It is supported on 24 piers, the central span being 330 feet, the remaining ones 242, with massive abutments; the bridge tube is of iron 22 feet high by 16 wide, slightly lessening at the ends. It was erected at a cost of $6,300,000. The hight of the center span above ordinary river level is 60 feet. Three million cubic feet of masonry and 10,000 tons of iron enter into the construction of this gigantic work. Near the center there is an opening which affords a magnificent view of the river and city. No railroad train is allowed to enter this bridge without a written permit from the proper officer, thus insuring exemption from collision or accident. The passage is somewhat cheerless, occupying some six minutes, though seeming much longer to the passenger. The river beneath the bridge has a swift current, and the piers are calculated to withstand immense pressure from descending masses of ice. The piers are sufficiently massive to allow another or double-track bridge to be constructed, and it is believed the enterprise will engage the attention of engineers and capitalists. A good road could be had over the railway for carriages and pedestrians, and as additional facilities are required for crossing between the city and the south shore of the St. Lawrence, for railway and other purposes, this mode is undoubtedly the best.

The locks of the Lachine Canal were then visited, and subsequently the harbor. The existing wharfage accommodation measures 16,140 lineal feet, or more than three miles. There are 11,690 feet of wharf-room in 20 feet depth of water, and 4450 feet in 10 feet depth of water. In addition, there are now

under contract, part of which is near completion, 17,900 feet of new wharf at different points from Mill street to Hochelaga, of which more than one-half is in 24 feet depth of water.

At 1 p. m. the members and ladies of the party were entertained at a lunch tendered them by citizens at St. Lawrence Hall, and from 3 to 6 at a garden party by Mrs. Redpath. This ended the festivities, and by night and early morning trains the visitors wended their way back to "the States" well pleased with Montreal and its hospitable citizens.

Special Notices.

BISSELL & WELLES,
Auctioneers.

TUESDAY, Sept. 30, 1879,
At 10 o'clock.
At our Salesroom,
83 Chambers and 65 Reade Sts., New York.

Attractive Sale of
Hardware, Tinned and Enameled Ware, &c.,

Comprising in part a general assortment of Shelf Hardware; also a large and desirable line of French, Tinned and Enameled Ware, direct from factory; comprising over 300 lots Sauce, Dish, Fry and Milk Pans, Wash Basins, Preserving Kettles, Pails, Ladles, Spoons, &c., together with other goods too numerous to mention.

WEDNESDAY, Oct. 1st,
Second Sale of
AMERICAN TABLE CUTLERY
(second quality), without reserve,
By Order of the Cutlery Association,

Comprising over 12,000 dozen first and second quality Table Cutlery, Carvers, Butcher Knives, &c., desirable patterns and of the manufacture of the John Russell Cutlery Co., Landers, Frary & Clark, Beaver Falls Cutlery Co., Lamson & Goodnow Manufacturing Co., Meriden Cutlery Co., and American Cutlery Co.

In view of the present advance in Cutlery and the difficulty in obtaining goods for immediate consumption, this sale presents additional features to buyers in need of goods, as the entire quantity sold will be delivered immediately.

Also, same day, an attractive line of
POCKET CUTLERY,
S. P. Spoons, Solid Steel Plated Knives, &c.

PROBATE SALE
OF VALUABLE
Factory, Machinery, &c.,
AT SOUTH NORWALK, CONN.

Pursuant to an order of the Court of Probate for the District of Norwalk, will be sold at public auction on
WEDNESDAY, the 15th day of October, 1879,
At 11 o'clock forenoon (unless previously disposed of at private sale), the valuable real estate lately belonging to the Norwalk Iron Works Company, and also all the Tools and Machinery, Boilers and Engines, Shafting and Belting, Foundry, Furnace and Cranes, all in running order and suitable for a first-class machine shop of large capacity; also Patents and Patterns of Steam Engines and Pumps.

Said real estate adjoins the track of the N. Y., N. H. & H. R. R. Co., and has a convenient dock on Norwalk Harbor. The subscriber has been specially authorized by said court to make said sale.

Same to take place on the premises. Terms and conditions made known at time of sale.

TALLMADGE BAKER.
SOUTH NORWALK, Sept. 4, 1879.

A Woodruff & Beach Beam Engine,

Low pressure, 42-inch cylinder, 84-inch stroke, with fly-wheel pulley 20 feet diameter, 36-inch face, and

Four Tubular Boilers,

60 inches in diameter, 20 feet long, and all connections practically as good as new.
For sale by
The Geo. Place Machinery Agency,
121 Chambers and 103 Reade St.,
NEW YORK.

Established Business.

Wanted to purchase, patents on staple articles, Hardware, or will purchase established business for removal.

Address, with full particulars,
P. O. BOX No. 37,
New Haven, Conn.

SITUATION WANTED

by a first-class double entry bookkeeper and correspondent. Moderate salary expected.

The advertiser has had many years' factory experience. Address
WM. HARNETT,
234 East 29th St., New York.

Superintendent or Foreman Wanted
For a Bar Iron Rolling Mill.

Address with full particulars as to age, salary expected, where previously or at present employed, and references,
BAR IRON MILL,
Office of *The Iron Age*, 83 Reade St., New York.

AN EXPERIENCED Mechanical Draughtsman accustomed to heavy rolling mill work, can find employment for a few months by addressing
A. B.,
Office of *The Iron Age*, 83 Reade St., New York.

WANTED.

A second-hand 1000-lb. steam hammer in good working order. Address A. B.,
Office of *The Iron Age*, 83 Reade St., New York.

WANTED.—SITUATION AS SALESMAN, Business Manager, Correspondent or Bookkeeper by a practical man who thoroughly understands the manufacture of Gas and Steam Fitting trade in its details. Address "FITTINGS,"
Box 3393, New York.

JUST PUBLISHED—SENT FREE.
Complete History of Wall Street Finance, containing valuable information for investors. Address BAXTER & Co., Publishers, 17 Wall street, New York.

Special Notices.

EXECUTORS' SALE OF AN
Anthracite Blast Furnace.

The subscribers, executors of the last will and testament of Peter Uhler, late of the Borough of Easton, Pa., deceased, will sell at public sale, at the Circle, in said Borough, on
THURSDAY, October 16, 1879,
At 2 o'clock P. M.,
all that certain Anthracite Blast Furnace, located in the Borough of Glendon, about two miles from Easton. The tract of land contains about 15 acres, and lies between the Lehigh Canal and Lehigh River, just below the Chain Dam, adjoining Glendon Iron Company's furnaces. The furnace erected thereon is a sheet iron casing stack, 14½ feet bosh by 70 feet high, with closed top; I. P. Morris & Co.'s low pressure condensing engine, 8 boilers, 2 Kent's hot-blast ovens, casting house, engine house, steam hoist, &c. Also 11 good tenement houses, large store, two stables and a blacksmith shop. The furnace buildings are of brick and stone and put up in the best manner, with all the modern improvements. The works were built in 1871, and are in good order and nearly ready to blow in. Stock can be supplied by boats on Lehigh and Morris Canals or Lehigh Valley Railroad. Hematite ores can be delivered to the furnace for $2.65 per ton and limestone for 30 cents per ton.

The terms and conditions will be made known on day of sale by
S. L. UHLER,
E. I. HUNT,
Executors.
Sale positive to close up the estate.

Rolling Mill for Sale.

The Real Estate, Machinery, Fixtures and Tools of the PORTLAND ROLLING MILLS will be sold at public auction, without reserve, to the highest bidder, at the mills,
TUESDAY, September 30, 1879,
At 3 o'clock P. M.

The property of the company consists of 69 acres of land on tidewater, in the town of Cape Elizabeth, Cumberland County, within ten minutes' drive of the city of Portland. Besides the mill buildings the company owns 55 tenements in 25 buildings, one hall used for church purposes, two stores and a thoroughly well fitted office, with fire-proof vault and all modern improvements. All the buildings are in good repair.

The Mill contains one 10-inch train, and one 18-inch train, with all the machinery appertaining to the manufacture of rails and bar iron. Its capacity is 14,000 tons of iron rails or 6000 tons of merchant iron per year.

The property is provided with a thoroughly built wharf, at which vessels of 800 tons capacity can lie at low water, and is directly connected by rail with all the railroads centering at Portland.

The mill is now in active operation, but possession will be given about the 15th of October, 1879.
PHILIP HENRY BROWN, President,
Portland, Maine.

PARK BENJAMIN'S
SCIENTIFIC EXPERT OFFICE,
37 Park Row, New York.

Examines and reports on the novelty of inventions.
Furnishes recipes and information on all industrial processes.
Prepares drawings and engravings of machinery.
Tests, designs, constructs and selects machinery.
Address,
G. H. BENJAMIN,
Business Manager.

Special Notice.

Hardware Manufacturers' Exchange,
43 Chambers Street, New York.

The undersigned desires to inform all Manufacturers of Hardware throughout the United States that he has fitted up rooms, centrally located, well lighted, &c., running through from Chambers to Reade street, for the exhibition of manufactured goods in all lines of hardware. Any manufacturer can at a small annual cost exhibit his wares to actual buyers throughout the year, and all visitors can examine them free.

The advantages to both manufacturers and buyers are too apparent to need any explanation.

For further particulars and application for space address
W. G. FULTON, Manager.

THOS. TURTON & SONS,
Successors to
WM. CREAVES & SONS,
Steel, File and Railway Spring Manufacturers,
SHEFFIELD, ENGLAND,

desire to give notice that they have removed their place of business from
102 John Street, New York,
TO
40 Kilby Street, Boston,
where their American interests will be in future under the management of
MR. ALEX. A. ARTHUR.

For Sale.—Barbed Fence.

I have a patent on Barbed Fence Wire. Will sell or let responsible house manufacture on a royalty. It does not conflict with other patents, being an entirely new departure. It takes little or no machinery to manufacture. It is not affected by heat or cold. It takes less wire, less time to put up, is the simplest and can be made cheaper than any other fence in the market. Call or address from Sept. 27th to Oct. 1st, J. L. Flannery, 104 John street, Room 34; after that, care of Wheeler & Wilson Mfg. Co., 44 E. 14th street.

For Rent,
MARIETTA FURNACES,

Situated on Penna. R. R. and Penna. Canal, in Lancaster Co., Pa. Address
H. M. W.,
Office of *The Iron Age*, 220 S. 4th St., Phila., Pa.

WANTED.

A small Steam Hammer for hammering puddle balls for three puddling furnaces.

Address,
HAMMER,
Office of *The Iron Age*, 83 Reade St., New York.

SITUATION WANTED as General or Assistant Manager, by a man of long experience in Rolling Mill and Nail Business. Best references for character and ability. Address MANAGER,
Office of *The Iron Age*, 83 Reade Street, N. Y.

WANTED—The exclusive services of an engineer, or otherwise, of sterling integrity, energy and sobriety, who has large experience in the construction and management of coke furnaces. Undoubted references required.
Address P. O. Box 32, Philadelphia, Pa.

Special Notices.

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MACHINERY
Of any kind
UNTIL YOU WRITE TO US

for our List No. 20, containing full description, with prices, of over 2000 New and Second-Hand Machines, such as

MACHINE TOOLS,
BLACKSMITH TOOLS,
WOODWORKING MACHINERY,
STATIONARY AND HORIZONTAL ENGINES AND BOILERS,
PORTABLE ENGINES,
HOISTING ENGINES,
CAR MACHINERY,
WATER WHEELS,
COTTON AND WOOLEN MACHINERY,
SAWS,
STEAM PUMPS, &c., &c.

We offer the largest collection ever in the hands of ONE FIRM before, and at
PRICES FAR BELOW THEIR TRUE VALUE.

Enclose stamp and state fully just what Machine or Machines you are in want of. Address
S. C. FORSAITH & CO.,
MACHINISTS,
AND GENERAL MACHINE DEALERS,
MANCHESTER, N. H.

FOR SALE.

A valuable property in the State of Wisconsin, free from all incumbrances, embracing an inexhaustible deposit of Iron Ore and about 900 acres of land, of which about 700 acres are covered with a heavy growth of large oaks and other hardwood timber. The ore is rich and free from even a trace of phosphorus. The facilities are unusually favorable for the manufacture of a superior quality of Charcoal Iron, and as cheap, if not cheaper, than can be manufactured elsewhere in the United States.

It is on the line of one of the leading railroads of the State, and is accessible to all Mississippi ports and the lakes.

The veins or mines are to a certain extent developed, and had been successfully worked for some time.

The greater part of the land would be well fitted for farming purposes, as the ground is very fertile, and the price asked for it will not exceed that asked for common farming land. Property in New York City or vicinity will be taken in exchange.

For information apply to or address the proprietor,
JULIUS W. HAAS,
Dubuque, Iowa.
Or EDWARD MULLER,
Care BIGELOW & Co.,
P. O. Box 135, Newark, N. J.

FOR SALE OR LEASE,
A MANUFACTURING ESTABLISHMENT
IN SCRANTON, PA.

On corner of two main streets, only one-quarter mile on level road from two railway stations. Size of lot 50 by 150 feet; main building, 30 by 100 feet; engine, 35-horse power. Buildings and machinery first-class and nearly new.

Underlaid and surrounded with coal, the cost of fuel for steam is merely nominal. Best forge coal $1.50 per ton. With complete lines of shafting, &c., the premises can be easily and cheaply adapted to any light manufacturing business.

Former proprietor, after successfully manufacturing Axes and Edge Tools in the vicinity for 30 years, designed and built this shop at an expense of $10,000 for the continuance of the business, but failed during the late depression.

Having neither time nor ability to run these works, I will sell very low on easy terms.
Address,
AMBROSE MULLEY,
Providence, Lackawanna County, Pa.

FAIRBANKS
STANDARD SCALES.

The firm name most widely known to the mercantile world, and made so by the nature and extent of their business, is perhaps that of Messrs. E. & T. Fairbanks & Co. Not only is the honor of having been the first to invent and introduce the platform scale, thereby revolutionizing the whole system of weighing, theirs, but to their skill and energy is due the numberless improvements and degrees of perfection attained in all modifications of scales now in use. Their success as scale manufacturers has been unparalleled, and the steadily increasing business of their representative house in this city attests well the fact that the Fairbanks Scale in this section, as in others, ranks first in popular preference. The contract for scales for the mammoth elevator to be built by the well-known and successful contractors of this city, Messrs Malster & Reaney, for the Pennsylvania Railroad Company at Jersey City, N. J., has just been awarded to Messrs. Fairbanks & Co., and the importance of the order may be appreciated when it is stated that the weighing apparatus of the elevator will comprise forty-eight 18-ton scales, having a capacity of 600 bushels each, or 28,800 bushels in all. It may be added that Messrs. Fairbanks & Co. have just been successful in closing contracts for all the scales to to used in the following new elevators now in the course of construction: At Buffalo, N. Y., for the New York, Lake Erie and Western R. R. Co.; at Chicago, by Messrs Armorer, Dole & Co., and in Detroit, Mich., by Mr. Wm. H. Vanderbilt.—*Baltimore American.*

Mining & Manufacturing Property
For Sale or To Let.

A valuable property in New Jersey, at a railway station, consisting of rich **Iron Mines,** unexcelled **Water Power,** large **Factory** and **Farm.** Will *sell all or part*, or *lease* the *Factory* with Machinery, or the *Mine.* For particulars apply to
THOS. H. STOUT,
79 Cedar St., New York.

Wholesale Cutlery.

A favorable opportunity is offered to an active man, with a capital of at least $25,000, to take the place of a retiring partner in a leading Cutlery business in one of the principal Western cities. For particulars address
H. W.,
P. O. Box 96, New York.

Special Notices.

Bessemer Steel Wire Rods,

in lengths averaging sixty pounds, guaranteed to draw at least to No. 9 without annealing and to draw to No. 24.

For sale by
E. S. WHEELER & CO.,
54 Cliff Street,
NEW YORK.

JOHN E. SWAN & BROTHERS,
GLASGOW, SCOTLAND,

Exporters of all brands of
Scotch & English Pig Iron.

See advice from London.

Old Iron Rails, Coals and Minerals.

Blast Furnace for Sale or to Lease.

Situated on the Hudson. Size, 16x60, with first-class blowing machinery, ovens, tools, &c. The location for transportation of stock to the Furnace and iron to the market is most excellent. There is a fine dock and good appliances for handling material. Iron can be made here very low, and at present prices at a good profit.
PANCOAST & TARR,
28 Platt St., New York.

To Manufacturers of Iron for Steel Purposes.
DUPUY'S DIRECT PROCESS

Produces bars direct from ore, in one heat, at low cost, in ordinary Reverberatory Furnaces. It is indorsed by steel manufacturers to be equal to best Swedes iron for high grades of steel.
For information apply to
P. S. JUSTICE,
No. 14 North Fifth Street, Philadelphia.

Valve Refitting Machines.

All users of Globe Valves should have one.
Send for circular and price list.
A few good agents wanted to sell on commission.
GRISCOM & CO.,
Pottsville, Pa.

FOR SALE.

Hardware Stock and Fixtures in one of the best towns in Nebraska. Will be sold low for satisfactory reasons. About $2500 required. A splendid chance.
Address,
HARDWARE,
Box 21, Lincoln, Neb.

FOR SALE.

Rail or Bar Train complete, with rolls for rolling rails from 12 to 65 lbs., and also for all sizes of bar iron, flats, rounds and squares, in perfect condition, having been in use for a short time only.
For terms, &c., apply to
J. M. BROWNSON,
P. O. Box 748, Pittsburgh, Pa.

WANTED.

Situation as Salesman, Business Manager or correspondent, by a gentleman who has been connected with a large rolling mill for many years, and has an extensive acquaintence with the merchants and consumers of iron throughout the country. Address,
SALESMAN,
Office of *The Iron Age*, 77 4th ave., Pittsburgh, Pa.

HARDWARE STORE FOR SALE,
In Dover, N. H., to Close an Estate.

The old established Hardware Store of G. F. ROLLINS & Co., with a well-selected stock of $4000 to $5000, and a good run of custom.
WM. H. ROLLINS,
Administrator.
DOVER, N. H., Sept. 4, 1879.

SITUATION WANTED—In wholesale or first-class retail business. A thoroughly competent hard-working man, long connected with and referring to first-class well-known city houses, desires a position. Is posted in builders' and general hardware; is a competent bookkeeper and good salesman. No objection to leave the city. Address for reference and full particulars,
WILLIAMS, P. O. Box 1218, New York City.

A THOROUGH SALESMAN, with many years' experience on the road, and a good acquaintance with the Hardware Trade both East and West, is open for an engagement. Could invest, if desired, a few thousand dollars in a sure and good thing where the man is needed more than the money. Speaks German. Please address
"FRITZ,"
Office of *The Iron Age*, 83 Reade St., New York.

FOR SALE.—A complete establishment for the manufacture of Bolts and Nuts. A commodious brick building covered with slate. A large lot of ground with railroad track. A good steam engine and boiler. Counter-shafting, belts, punches, bolt cutters, lathes, radial drills, taps, dies and everything in complete order for business. Will be sold at a bargain. Inquire of GEO. B. CAPELLE, or ALLEN GAWTHROP, Wilmington, Del.

FOR SALE OR RENT.—The Pequest furnace and 200 acres of ore and limestone; land can be sold or leased at a reasonable price.
Address E. DALLETT HEMPHILL,
Lock Box 26, Allentown, Pa.

WANTED.—A SITUATION AS SUPERINtendent or manager, by a practical man who thoroughly understands the manufacture of iron in all its details, including merchant bar, hoops, sheets, plate and tank iron, &c. Satisfactory references. Address "IRON,"
Office of *The Iron Age*, 83 Reade St., N. Y.

Special Notices.

One 9-inch Train Rolls,
One 16-inch Train Rolls,
Both with Housings.
One Steam Hammer,
One Pair Shears,
One Lot Steel Ingot Molds,
Three Large Woodward Steam Pumps,
Three Small Steam Pumps,
Two Hoisting Engines,
Three Steam Boilers,
One Lighthall Condenser,
One Surface Condenser,
Deck Pumps, Low Pressure Gauges, Registering Gauges, &c.

FOR SALE LOW BY
DANIEL W. RICHARDS & CO.,
Dealers in
Scrap Iron & Metals,
88 to 96 Mangin St., New York.

Price Fifty Cents.
JUST ISSUED.
SECOND EDITION OF
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Discount Book,

with a Guide Page added, by which any desired table can be referred to *instantly, without turning a leaf* or *wasting a moment.*

This edition is handsomely bound in cloth, and will be mailed to any address upon receipt of the price, 50 cents.

Bound in leather, with silicate leaves, price $1.
Address **EDWARD B. LEIGH,**
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Or either of the Publishers, viz:
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Principal Industrial and Agricultural Cities and Centers of Europe.
TERMS ON APPLICATION.
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The Sherman Process Co.
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Issue Licenses to use the Process for the Manufacture of Iron and Steel
In the Bessemer Converter, Crucible, Siemens-Martin, Puddling, Blast and Cupola Furnaces.
The use of this Process improves the quality of the product, saves fuel and labor, and does not require any change in furnace or manner of working
See page 17 of *The Iron Age* of Oct. 25th, 1877.

Price Books.

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BUELL LAMBERSON,
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These books may also be had at publishers' prices of WM. BLAIR & CO., Chicago,
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R. W. BOOTH & CO., Cincinnati, O.

AMERICAN SPECIAL MACHINERY.
The attention of
FOREIGN MANUFACTURERS
is invited to our facilities, for supplying the latest improvements and best workmanship.
RICHARDS & DOLE,
Springfield, Mass

TO LARGE CONSUMERS
of fine light
Malleable and Gray Iron Castings.
We can offer special inducements in the way of very superior quality guaranteed, and at fair prices. Being ourselves large consumers and requiring the most perfect castings, other work is ensured the same attention.
MALLORY, WHEELER & CO.,
New Haven, Conn.

CALIFORNIAN AGENCY.

A San Francisco firm of File and Tool makers having an agent constantly traveling among the consumers in the State and West Coast, is desirous of representing some first-class Eastern Houses in the manufacturing hardware trade.
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FLOWER PINS.
PATENT FOR SALE.
Address
J. H. PLUMMER,
1276 Pacific Street, Brooklyn, N. Y.

FOR SALE,
Job Lots and Bankrupt Stocks Hardware.
Great bargains offered to the trade.
A. W. WHEELER,
141 Lake St., Chicago, Ill.

Sanderson Bros Steel Co.
A limited number of shares for sale by
EDWARD FRITH & SON,
241 Pearl street, New York.

Trade Report.

Office of THE IRON AGE,
WEDNESDAY EVENING, September 24, 1879.

The large receipts of specie from abroad, amounting since the 1st of August to about $29,500,000, give assurance of continued ease in the money market, and relieve any anxiety which might otherwise result from the heavy drain upon the banks, caused by the large movements of produce. By the middle of next month the return movements of currency will probably exceed the outflow, and the tendency is rather toward a glut in the money market than toward stringency. To the increase of circulation, resulting from specie imports, we must add the production of precious metals, amounting to $40,000,000, more or less, making, with the total receipt of $35,600,000 since specie payments were resumed, a net gain of about $75,000,000 gold and silver. In the local money market call loans have ranged 4 @ 7 %. Time loans are easy at 5 %; mercantile paper is quoted at 5 @ 6 % for prime.

Government bonds have been strong and higher. Railroad mortgages were irregular, but desirable issues show an upward tendency. We give below the closing quotations of governments.

The stock market has been irregular—at all times active and sometimes wild with excitement. The coal shares have been favorites with the speculators. We give below the closing quotations of stocks on the active list.

The bank return shows an increase of $1,938,875 in surplus reserve, which now stands at $4,903,650, against $12,535,200 at this time last year, and $10,048,075 at the corresponding period in 1877. The loans show a gain this week of $2,430,600; the specie is up $65,100; the legal tenders are increased $2,548,300; the deposits other than United States are up $2,698,100, and the circulation is decreased $218,600.

The following is an analysis of the bank totals of this week compared with that of last week:

	Sept. 13.	Sept. 20.	Comparisons.
Loans	$256,962,400	$259,391,000	Inc. $2,430,600
Specie	19,876,900	19,942,000	Inc. 65,100
Legal t'nd'rs	39,481,100	42,029,400	Inc. 2,548,300
Tot. reserve.	59,358,000	61,971,400	Inc. 2,613,400
Deposits	225,572,900	228,271,000	Inc. 2,698,100
Reserve required	56,393,225	57,067,750	Inc. 674,525
Surplus	2,961,775	4,903,650	Inc. 1,938,875
Circulation	21,603,500	21,384,900	Dec. 218,600

The foreign trade movements at the port of New York since our last issue are shown in the following tables:

IMPORTS.

For the week ended September 20:

	1877.	1878.	1879.
Dry goods	$1,788,917	$1,868,253	$2,784,233
General mdse	4,611,216	3,783,775	4,590,516
Total for week	$6,400,133	$5,652,028	$7,374,749
Prev. reported	237,801,924	203,411,470	224,683,055
Since Jan. 1	$244,202,057	$209,063,498	$232,057,804

Included in the imports were items of merchandise valued as follows:

	Quantity.	Value.
Anvils	258	$9,500
Brass goods	33	4,412
Bronzes	65	18,397
Chains and Anchors	59	3,224
Copper		176
Cutlery	85	28,566
Gas fixtures	4	620
Guns	78	19,281
Hardware	9	200
Iron, hoop, tons	56	1,683
Iron, pig, tons	2,120	35,569
Iron, sheet, tons	35	3,098
Railroad bars	1,160	4,483
Iron ore, tons	3,364	5,974
Iron, other, tons	2,793	54,765
Metal goods	274	15,150
Nails	3	947
Needles	26	10,669
Old metal		156
Percussion caps	37	8,887
Saddlery	9	1,486
Steel	3,360	24,926
Silverware	6	885
Tin, bxs	45,557	202,570
Tin, 4,473 slabs	lbs., 982,613	42,663
Wire	21	140
Zinc	77,733	3,474

EXPORTS, EXCLUSIVE OF SPECIE.

For week ended September 23:

	1877.	1878	1879.
For the week	$7,427,911	$7,543,395	$8,840,466
Prev. reported	195,344,500	246,830,294	234,906,481
Since Jan. 1	$202,772,411	$254,379,589	$243,746,947

EXPORTS OF SPECIE.

For the week ended September 20:

Total for the week	$173,885
Previously reported	12,377,341
Total since Jan. 1, 1879	$12,451,226

Government bonds at the close were quoted as follows:

	Bid.	Asked.
U. S. Currency 6's	121¼	123
U. S. 6's 1880 registered	103¼	104
U. S. 6's 1880 coupon	103¼	104
U. S. 6's 1881 registered	104⅞	105
U. S. 6's 1881 coupon	104⅞	105
U. S. 5's 1881 registered	102⅝	102¾
U. S. 5's 1881 coupon	102½	102¾
U. S. 4½'s 1891 registered	104⅞	105⅛
U. S. 4½'s 1891 coupon	105	105¼
U. S. 4's 1907 registered	101¼	101⅜
U. S. 4's 1907 coupon	102¼	102⅜

The following were the closing quotations of active shares:

	Bid.	Asked.
American District Telegraph	67	67½
Atlantic and Pacific Telegraph	34¼	35¼
Canada Southern	65¼	66⅛
Canton	46½	48
Caribou	5	5¼
Col., Chicago and Indiana Central	12¼	12⅜
Cleveland and Pittsburgh	101	102
Chic., St. Paul and Minn.	46⅞	47
Chicago and Alton	96½	97
" " Pref.	108	110
Ches. and Ohio	9½	9¾
" " 1st Pref.	17	18
" " 2d Pref.	12¼	12⅝
Delaware, Lack. and Western	64¾	64⅞
Delaware and Hudson Canal	54⅛	54¼
Express—Adams	102	103
" American	50¾	51
" United States	44¾	45⅝
" Wells, Fargo & Co.	99	100
Erie	27⅞	28
" Pref.	52¼	52½
Hannibal and St. Joseph	23¾	23⅞
" " Pref.	51¾	52
Homestake	41¼	41½
Houston and Texas	17	17½
Illinois Central	91½	91¾
Ind., Cincinnati and Lafayette	6¾	7
Kansas Pacific	70	71
Lake Shore	93	93¼
Louisville and Nashville	61¼	61½
Michigan Central	83⅜	83¾
Morris and Essex	93¼	93½
Mobile and Ohio	10½	11½
Nashville and Chattanooga	43	43½
New York Central	118¾	119⅛
New Jersey Central	56¾	56⅞
Northwest	81¾	81⅞
" Pref.	99¾	100
Ohio and Mississippi	17⅜	17½
Pacific Mail	27⅞	28
Quicksilver	13¼	13⅝
" Preferred	47¼	48⅛
Rock Island and Pacific	140	142
St. Louis and Iron Mountain	42⅝	43
St. Louis Kansas City Northern	24¾	25
" " Pref.	60	60¼
St. Louis and San Francisco	18½	19½
" " Pref.	21¼	21½
" " 1st pref.	47	47½
St. Paul	68¼	68⅜
" Pref.	100¾	101
Standard	30½	31
Union Pacific	82¼	82½
Wabash	43¼	43⅜
Western Union Telegraph	92⅜	92½

GENERAL HARDWARE.

Business continues active, and the market for Hardware, owing to the prevailing upward tendency in values, is in some departments feverish and excited. The stimulus that such periods as we are passing through at present gives to speculative transactions is keenly felt, and manufacturers, in consequence, in a great many instances are withdrawing all quotations and declining business which, in their estimation, has more of the speculative than the real element in it. The following card from Horace Durrie & Co. shows the temper of the trade in this respect:

Office of HORACE DURRIE & Co.,
97 CHAMBERS AND 81 READE STREETS,
NEW YORK, September 16, 1879.

In consideration of the unsettled state of the market on all kinds of stock, we are obliged to withdraw all previous quotations on the lines of goods we represent.

All orders you may favor us with we will fill as early as possible at prices ruling at date of shipment. Yours, truly,
HORACE DURRIE & Co.

Notices of similar import have been issued by Graham & Haines, Lawrence Curry Comb Company, Madden & Cockayne File Company, Wheeler, Madden & Clemsen Manufacturing Company, Biddle Hardware Company, Jacobus & Nimick Manufacturing Company, Penn Hardware Co., Cheritree Hardware Co. and others.

The Nail Manufacturers, composing the Atlantic States Nail Association, held a meeting in this city on Thursday last, when the price of 10d. to 60d. was further advanced to $3.25, net. From this price no rebate for quantity orders is allowed. The demand is reported fair and supplies unusually light and badly assorted. We quote 10d. to 60d. $3.25 net, with no disposition on the part of makers to accept large contracts for future delivery, except at prices ruling date of shipment. For small lots an advance on the card rate of 10 to 25 cents per keg is asked.

The Lock manufacturers, in view of the increased cost of materials, have advanced prices to the equivalent of discount 65 per cent. from Russell & Erwin Mfg. Co.'s list. The advance is about 16⅔ per cent. The following notices have been issued, and corresponding notices by other manufacturers are in course of preparation, and will be issued with their revised lists:

NOTICE.

Office of RUSSELL & ERWIN MFG. Co.,
NEW YORK, September 18, 1879.

We have this day made our discount on Locks, Knobs, Escutcheons, Keys, &c., on pages 1 to 168, of 1879 catalogue (except Porcelain and Mineral Drawer and Shutter Knobs), 65 per cent. We have also made our discount on Real Bronze Goods, 10 per cent., subject to change without notice. All orders subject to our ruling rates at date of shipment. No prices guaranteed.
RUSSELL & ERWIN MFG. Co.

Office of the
NORWICH LOCK MANUFACTURING COMPANY,
NORWICH, CONN., September 18, 1879.

We this day advance our discount on Door Locks, Knobs and Escutcheons, to 45 per cent., and 2 per cent. for cash—30 days.
NORWICH LOCK MFG. Co.

Owing to the rapidly advancing prices of metals and labor, the above discount is quoted subject to change without notice.

BRANFORD LOCK WORKS,
BRANFORD, Conn., Sept. 23, 1879.

To the Editor of The Iron Age.—DEAR SIR: Pending the preparation of a new revised price list of our goods, we would say for the information of the trade that our new price list will be based on the present list of the Russell & Erwin Mfg. Co., at 65 per cent. discount. Yours, &c.,
BRANFORD LOCK WORKS.

Sargent & Co. have issued the following circular of additional changes in discounts:

CHANGES.

The following changes have been made since the issue of our Discount Sheet No. 7, of September 15:

Page in 1877 Catalogue.		Discount Per cent.
34.	Nos. 160 and 162, Plate Hinges: 6, 8, 10 and 12 in., per 100 lbs., $6.50; 14 in. and larger, per 100 lbs., $5.20	Net.
35,	Nos. 166 and 168, Hook Hinges: 6, 8, 10 and 12 in., per 100 lbs., $6.50; 14 in. and larger, per 100 lbs., $5.20	Net.
36,	No. 98, Heavy Hook Hinges: 8, 10 and 12 in., per 100 lbs., $6.50; 14 in. and larger, per 100 lbs., $5.20	Net.
202,	Drawer Pulls, Nos. 20, 21, 300 and 186	75
386,	Stebbins' Genuine Gates	55
L. F. & C's Gates (Stebbins' Pattern)		37½
430,	Deep Socket Casters	20
505–655,	Mallory, Wheeler & Co's Locks, Knobs, &c., see last pages of discount sheet No. 6 for lists, and change the discounts from 40 and 7½ and 2 to	37½
Padlocks (not changed)		33
647,	Patent Roller Sliding Door Sheaves	12½
666,	Scandinavian Padlocks	75&11
New 703,	Shoe Nails:	Net
	Iron 4-8ths and longer	Cents. 5½
	" 3½-8ths and shorter	6½
	Swedes Iron	8
	Charcoal Iron	7½
	Zinc	12½
	Copper	35
704,	Hob Nails, change list: American 9½ cts. | Swedes 11 cts.	Net
710,	Flat Head Iron Screws	50
711,	Japanned Screws	40

10 per cent. extra discount for prompt cash.

SARGENT & Co.,
New York and New Haven, Conn.
NEW YORK, Sept. 23, 1879.

Roy & Co. and the Stanley Works have this day made the following prices on Wrought Butts, viz.:

	Dis. ℘ cent.
Wrought Broad Butts, Narrow Butts, Table, Back Flaps, Inside Blind, Pew Door, Chest	50&10
Loose Joint Butts, Reversible Butts, Light Narrow, Light Inside Blind	60
L. Pin Light Narrow Butts	45
" " Inside Blind Butts	45

It is expected that these prices will become general with all of the munufacturers.

At a meeting of the Auger and Bit Manufacturers' Association, held at the Astor House, in this city, to-day, the following resolution was passed:

Resolved, That on and after this date (Sept. 24) the discount on Augers and Bits shall be 50 per cent., cash 30 days, on the list adopted by the association December 4, 1878, and that all previous quotations are hereby withdrawn. That Augers 10-4 and larger shall be 10 per cent. advance on smaller sizes.

It will be seen by the following joint circular that the price of Coes' Wrenches have been advanced:

NEW YORK, September 22, 1879.

To the Trade: Referring to our circular of the 1st inst., and in view of continued advance in and scarcity of raw material, we are instructed to advise a further advance in price of Coes' Genuine Screw Wrenches of either make to 60 per cent. discount from list. Mechanics' Wrenches, made by L. Coes & Co., and similar quality made by A. G. Coes & Co., will continue to rate at 10 per cent. less than the Genuine. The foregoing changes to take place from this date, and are quoted subject to change without notice. All previous quotations are hereby withdrawn and annulled.

HORACE DURRIE & Co.,
Agents for L. COES & Co.
GRAHAM & HAINES,
Agents for A. G. COES & Co.

Graham & Haines, No. 113 Chambers street, are general agents for the Stock Bells manufactured by T. P. Barclay, of Louisville, Ky., under the trade mark "J. Geo. Dodge's Kentucky Bell." They carry a full stock and are prepared to fill orders at factory prices. On the 15th instant an advance of 10 per cent. was announced on these goods.

We have received the following announcements:

NOTICE.

Owing to the disposition of some of the leading buyers to order excessively, we find ourselves becoming so heavily loaded with orders as to greatly embarrass us in supplying the wants of the larger number. While we have no desire to change our prices before January 1, 1880, unless compelled to, we deem it for the best interest of all to advise you:

That all orders hereafter received will be subject to ruling rates at time of shipment, without further notice.

We shall hereafter accept orders only to the extent of our ability to fill them; and any unfilled orders remaining on our books at time of any change will be continued (in the absence of special notice to contrary) to be executed as fast as possible at such new rates. NICHOLSON FILE COMPANY,
W. T. NICHOLSON, President.
PROVIDENCE, September 18, 1879.

NEW YORK, September 22, 1879.

Owing to the recent large advance in the price of iron, we have this day advanced the price of Scale Beams Nos. 1 & 2 to 25 per cent. discount from our list of September 1, 1879. All quotations heretofore made are hereby revoked. Trusting that you will continue to favor us with your orders.
We remain, yours truly,
JOHN CHATILLON & SONS.

BOSTON, September 20, 1879.

To the Horse Shoe Nail Trade: We would call the attention of our customers to the printed terms on our invoices, viz.: All orders subject to price at time of delivery.

Owing to the excited condition and marked advance in the price of metals and other materials that enter into the manufacture of our Nails, we give this notice in order that no misunderstanding may arise, in case of any probable advance in the price of our Nails.
PUTNAM NAIL Co.

[*Circular No.* 11].

Office of the
TABLE CUTLERY MANUFACTURERS' ASSOCIATION OF THE UNITED STATES.
NEW YORK, September 22, 1879.

In addition to the changes named in our circular of September 4th, No. 10, we are compelled to make a further advance of 50 cents per gross on all Knives and Forks bearing the "Association" stamp. Also an advance of 15 cents per dozen on all Butcher Knives with the "Association" stamp.

John Russell Cutlery Co.; Landers, Frary & Clark; Lamson & Goodnow Mfg. Co.; Meriden Cutlery Co.; Beaver Falls Cutlery Co.; American Cutlery Co.

Landers, Frary & Clark have issued the following circular of changes in discounts under date of 22d instant.

[No. 4.] September 22, 1879.

LANDERS, FRARY & CLARK'S DISCOUNTS FROM LIST PRICES IN CATALOGUE OF JULY 1, 1878.

Note the following changes since our sheet No. 3.

Page.		Per cent.
19,	Fish Scalers	55
19,	Pan and Cover Lifters	60
19,	"O K" Tack Hammers	50
37,	Wrought Meat Hooks	70&10
56,	Tea Scales	45&10
57 and 58,	Hatch Even Balance Scales, Nos. 171 and 173	40&10
57 and 58,	Hatch Even Balance Scales, Nos. 165 and 166	35&10
57 and 58,	Hatch Even Balance Scales, all except above	35
60,	Excelsior Steelyards	33⅓
76,	Stebbins & Lincoln's Pattern Gates	57½&10
78,	Eccleston's Water Gates	45
93,	Drawer Pulls	60&10
96,	"	65&10
18,	Steak Hammers, New List	50&10
	No. 1 $3.50. | No. 2	$4.50
60,	Scale Beams, New List	50&10

Pounds	50	100	150	200	250	300
Each	$1.90	1.90	1.90	2.00	2.40	2.90
Pounds	360	400	500	600	700	800
Each	$3.40	3.80	4.40	5.30	6.00	6.60

72,	Balances, New List	25&10
	No. 156 $132 | No. 158	$140

Office of FRARY CUTLERY COMPANY,
BRIDGEPORT, CONN.
WIEBUSCH & HILGER HARDWARE Co.,
84 Chambers street, NEW YORK.

In addition to the advance of September 4, we have further advanced all the cheaper patterns of Wood and Bone Handle Knives and Forks about 50 cents per gross, and cheap Butcher Knives 15 cents per dozen.
FRARY CUTLERY Co.
WIEBUSCH & HILGER HARDWARE Co.
September 22, 1879.

FRANKFORD, PHILADELPHIA, Sept. 20, 1879.

In consequence of the advance in Iron and Steel already taken place, and its continued upward tendency, we feel compelled to withdraw all previous quotations. We shall issue a discount sheet October 1, and the 1st of each following month, for the benefit of our customers, until the prices of all material used by us are firmly established.
YERKES & PLUMB.

BLIND TRIMMINGS.

BOSTON, September 18, 1879.

GENTLEMEN: Owing to the recent and rapid advance in price of material, we are compelled to advance the price of our goods as follows, to take effect from this date:

Hinges, per 100 Sets.

No. 1, 3-hole Mall Hook	$6.50
No. 1, 2-hole "	6.25
No. 6, Brick "	16.00
No. 7, Brick Half Mall Hooks	16.00
Wrought Hooks, Wood extra,	.50
" Brick "	1.00

Fasts, per 100 Sets.

No. 1, or Lock	$5.00
No. 6	5.50
Novelty	5.50
Stover	5.50
Security, No. 1	5.50
Veazie	6.50
Excelsior	6.50
Hill	4.00
Goods packed in less than 100-set boxes, per 100 sets, complete extra,	.50
Hinges or Hooks (Separate price.) each,	¾c.
Sill Staples "	⅝c.
Back Catches "	1c.
Guides "	1c.
No. 6 Fast Straps (and similar) "	1¼c.

Discounts.

500 Sets, each H. and F. (or 10 boxes)	5 %
1000 " " " (or 20 ")	7½ %
2000 " " " (or 40 ")	10 %

Terms, 30 days; 2 per cent. discount for cash on receipt of goods. Yours, truly,
Signed: B. D. Washburn & Co., Geo. H. Caldwell, Galen Orr & Co., J. W. Bailey, Security Blind Fast Company, H. M. McIntosh, H. Prentiss & Co.

The American Screw Co., Russell & Erwin Manufacturing Co., and Union Steel Screw Co. have issued circulars, under date of 20th inst., announcing an advance in the price of Flat Head Wood Screws to discount 55 per cent. from list, all other kinds of Wood Screws remaining unchanged, as follows:

	Dis. from List.
Flat Head Iron	55 %
Flat Head Brass	45 %
Round Head Iron	45 %
Round Head Brass	30 %

The American Screw Co. have, in addition to their Screw circular, issued the following discount and revised price list for Machine Screws:

PROVIDENCE, Sept. 20, 1879.

To the Hardware Trade.—Our present quotations on following mentioned goods are:

Stove Bolts, 50 % discount from list.
Tire Bolts, Philadelphia Pattern, 75 % discount from list, Philadelphia. Bay State, 85 % discount from list, Common.
Coach Screws, per keg, 65 % discount from list.
Iron Black, Iron Tinned and Block and Carriage Rivets, 50 % discount from list.
Rivets in Bulk, 35 % discount from list.
Burrs, 35 % discount from list.
With special additional discounts for large quantities.

Terms, cash 30 days. Freight prepaid to New York, Boston, Philadelphia and Baltimore. To other cities freight is not prepaid, but will not exceed that from New York city. With the advancing tendency in the price of iron, we can recommend our friends to order freely upon above prices. Soliciting your commands, we remain yours very respectfully, AMERICAN SCREW Co.

PROVIDENCE, Sept. 20, 1879.

To the Hardware Trade: We ask your attention to an important reduction in our prices for Machine Screws, and to a change in price list. We have now adopted the list in use from May 10, 1856, to April 20, 1864, and while we have Screws in stock will sell at the following discounts:

	Dis. from list.
Flat Head Iron Machine Screws	65 %
Round " " "	60 %
Flat Head Brass " "	35 %
Round " " "	20 %
Taps for Machine Screws (per doz.)	45 %

This reduction is made to induce a larger consumption of our product, and to give employment to new machinery we are now constructing. If the demand under present quotations exhausts our stock, we shall advance prices to more remunerative rates.

We think the present offers a good opportunity for those contemplating the purchase of a stock of Machine Screws, and in execution of orders at the above prices we shall endeavor to give old customers, in other goods as well as Machine Screws, the preference. Awaiting your orders, we remain, yours, very respectfully,
AMERICAN SCREW Co.

IRON MACHINE SCREWS PER GROSS.
Revised List, Sept. 20, 1879.

	Threads per inch.									
	32, 36	30 & 32	24, 30, 32	20 & 24	16, 18, 20	16 & 18	16			
Nos	4	6	8	10	12	14	16	18	20	24
In.	cts.	cts	cts	cts	cts	cts	cts	cts	cts	cts
¼	45	45	45							
5–16	45	45	45							
⅜	45	45	50	55	60	75	90			
½	45	45	50	55	60	75	90	105	130	
⅝	..	50	50	55	60	75	90	105	130	
¾	..	..	50	55	65	80	95	115	140	200
⅞	..	..	..	60	70	85	100	125	150	200
1	..	..	..	65	75	90	110	135	160	200
1¼	..	..	..	..	80	95	120	145	170	220
1½	..	..	..	..	..	100	130	155	180	240

Machine Screws made to order, differing in length, size, thread, or head, from our regular standard Flat and Round Head Machine Screws, are subject to extra charge, when ordered in small quantities.

BRASS MACHINE SCREWS, PER GROSS.

	Threads per inch.								
	30 & 32	24, 30, 32	20 & 24	16, 18, 20	16 & 18	16			
Nos	6	8	10	12	14	16	18	20	24
In.	cts	cts	cts	cts	cts	cts	cts	cts	cts
3/16	68	79	95	.					
¼	68	79	95	120	155	210			
5/16	..	80	90	120	155	210	275	350	
⅜	..	82	99	120	155	210	275	350	
⅞	..	..	104	130	178	230	275	350	
1	..	..	115	145	183	235	275	350	750
1¼	..	..	..	175	215	255	300	390	750
1½	..	..	..	..	242	310	400	520	750

TAPS.

Size of Screw Gauge.	Number of Threads to inch.			Price Per dozen.
No. 4	32	36	40	$4.50
" 6	30	32		4.50
" 8	24	30	32	4.50
" 10	24	30	32	4.50
" 12	20	24		4.50
" 14	20	24		5.00
" 16	16	18	20	5.00
" 18	16	18		5.00
" 20	16	18		6.00
" 24	16	18		6.00

Special sizes and threads made to order at short notice, at special prices.

P. & F. Corbin, under date of 17th inst., announce advances in prices of their goods, which will be found below:

[*Circular No.* 1.]

P. & F. CORBIN,
NEW BRITAIN, CONN.,
NEW YORK, 87 Chambers street,
September 17, 1879.

GENTLEMEN: Owing to the recent advance in price of metals, we are compelled to advance the price of the following-named articles of our manufacture, to take effect from and after this date.

Other goods remain for the present at former quotations. All our prices are subject to change without notice.

Orders will be filled at prices ruling on date of shipment. Very respectfully,
P. & F. CORBIN.

LIST OF CHANGES REFERRING TO PRICE BOOK NO. 12.

Page in Price Book.		Make Dis. Per Cent.
4,	Light Brass Parliament Butts, No. 18	45
4,	Light Plated Parliament Butts, No. 118	33⅓
5,	Iron Parliament Butts, Nos. 19½ and 20	60
5,	" " " Nos. 21 and 22	50
6,	" Loose Joint " Nos. 40, 41, 42 and 42½	60
6,	" " " Nos. 43, 43½, 44 and 44½	65
6½,	Iron Loose Pin Butts, No. 52	60
6½,	" " " Nos. 53 and 54	65
6½ a,	Bronze Loose Pin Butts, Nos. 70 and 71	40
6⅝ a,	Bronze Metal Loose Pin Butts, No. 58	40&5
6¼,	Nickel Plated Loose Joint Capped Butts, No. 3½	40
6½,	Boston Finish Loose Joint Butts, Nos. 00 and 00½	45&5
6⅝,	Bronze Metal Loose Joint Capped Butts, No. 3	33⅓
8,	Brass Ox Balls	40
8,	" Flush Bolts	37½
8¼,	" Ship Flush Bolts	45
8¾,	Amber Bronzed Flush Bolts, Nos. 3232 to 3238	45
9,	Amber Bronzed Barrel Bolts, Nos. 3275 to 3484	33⅓
9,	Bronze Metal Barrel Bolts, Nos. 2275 to 2484	33⅓
9,	Brass Barrel Bolts, all	45
10,	Amber Bronzed Square Door Bolts, Nos. 2258 and 2260	45
10,	Amber Bronzed Flat Cupboard Bolts, Nos. 3077, 3079 and 3080	45
10,	Brass Flat Ship Bolts, Nos. 1551, 152, 153 and 154	40
10,	Brass Square Spring Bolts, Nos. 141 to 148	50
11,	Amber Bronzed Foot and Chain Bolts, Nos. 3250 to 3253	45
11,	Amber Bronzed Chain Bolts, Nos. 3259 and 3260	45
11,	Bronze Metal Chain Bolts, Nos. 1259 and 1260	45
11,	" Foot Bolts, Nos. 4250 and 4251	45
11,	" Square Spring Bolts, Nos. 1247 to 1248½	33⅓
11,	Japanned Round Cased Bolts, Nos. 265 to 272	45
11,	Brass, Plated and Japanned Door Chain Fasteners	45
12,	House Bells on Carriages	40
12,	" Bell Trimmings, change list	50
	Nos 215 215½	
	Per Gross $14.50 13.50	
12,	Brass Turn Bottons	33⅓
12,	Japanned Turn Buttons	40
12,	Brass and Japanned Buttons on Plates	40
14,	Japanned Cupboard Catches, Nos. 330 to 1627	40
14,	Amber Bronzed Cupboard Catches, Nos. 3020 to 3031½	40&5
14,	Amber Bronzed Cupboard Catches, Nos. 3136 to 3142	40&5
14,	Bronze Metal Cupboard Catches, Nos. 2136 to 2140 and 2265	40&5
15,	Wrought Brass Cupboard Catches, all	40&5
15,	Cast Brass Cupboard Catches, all	40&5
15,	Plain Closet Catches, Nos. 380 to 383	35
15,	Bronze Metal French Window Catches, Nos. 2270 to 2272	40&5
15,	Amber Bronzed French Window Catches, Nos. 3270 to 3272	40&5
16,	Brass Show Case Catches, all	40&5
16,	Elbow Catches, change list of No. 1622 to 84 cents per dozen	35
17,	Brass Thread Escutcheons, Nos 386 to 391	33⅓
17,	Sash Fasteners, change list	45&5
	Nos 402 402½ 403 404	
	Per doz $0.52 0.50 0.80 0.85	
18,	Japanned Thumb Latches, all	33⅓
18,	Door Handle and Latch, change list	50
	Nos 1133 1150 3200 1984 1985 1995	
	Per doz $3.50 3.34 1.65 3.50 3.15 4.90	
18¼,	Door Handle and Latch, change list	50
	Nos 1998X378 378½	
	Per set $1.62 1.88	
19,	Japanned Door Pulls	40
19,	Drawer Pulls, change list	50
	Nos 1215 1218 1227	
	$2.20 2.50 3.00	
19,	Drawer Pulls, change list	50
	Nos 01215 01218 01227 3328 3329	
	$4.00 4.80 5.75 4.40 4.85	
	Nos 3330 3334 3335 4334 4335	
	$5.30 6.40 7.25 3.00 3.75	
20,	Drawer Pulls, change list	50
	Nos 703 1093 1094 1107 1205 1206 12	
	$3.25 3.50 4.55 2.07 4.20 5.60	
20,	Drawer Pulls, change list	50
	Nos 1209 1210 1213 1216 1222 1224	
	$3.60 4.50 3.50 4.20 3.85 4.90	
20,	Brass Lifting Handles	40&5
20,	Flush Drawer Handles	40
20,	Japanned and Bronzed Flush Cheat Handles, Nos. 1874 to 1877 and 3575 to 3577	40&5
20,	Japanned Surface Cheat Handles, Nos. 1871 to 1873	50
20,	Amber Bronzed Surface Cheat Handles, Nos 3071 to 3073	40

22, Japanned Lamp Hooks....40
22, " Clothes Line Hooks....35
22, Ceiling Hooks, all....33⅓
22, Wardrobe Hooks, all....33⅓
23, Hat and Coat Hooks, Nos. 1070 to 1164½, 1870, 2870, 1870½ and 2870½....33⅓
23, Hat and Coat Hooks, Nos. 1751 to 1754½....20
23, Brass Hat and Coat Hooks, all....45
23, School House Hooks....33⅓
23, Harness Hooks....30
24, Shutter " change list....50
Nos.... 2177 2178 2674 2675
$7.00 8.00 4.00 4.45
24, Shutter Hooks, New York Pattern, Nos. 912 to 922....40
24, Shutter Hooks, Oval Pattern....45
25, Porcelain Picture Knobs....30
25, Brass Capped Picture Nails, Nos. 961 to 969..40
25, Porcelain-Tipped Picture Nails, Nos. 970 to 972....40
25, Flush Rings....45
26, Brass Screw Pulleys, Nos. 1652 to 1657....45
26, Japanned Screw and End Pulleys....40&5
26a, Japanned Ceiling Pulleys....45
26a, Tackle or Awning Pulleys....40&5
26a, Hot-House Pulleys....40&5
26a, Incased Screw and Swivel Pulleys....40&5
26b, Japanned Side pulleys....40&5
26b, Japanned Upright Pulleys....40&5
26b, Clothes Line Pulleys....40&5
26b, Porcelain Shutter Knobs....30
26¼, Axle Pulleys, Nos. 600, 600½, 601, 609, 610, 611, 1739 and 1740....37½
27, Window Springs, Nos. 1041 to 1044....40
27, Coffee Pot Stands....37½

Subject to the usual discount of 10 per cent. for cash in 30 days.

The Patton Manufacturing Company, Columbus, Ohio, have issued a catalogue and price list in which they illustrate their large assortment of Enameled, Tinned, Turned and Plain Hollow-ware. Among the goods shown are Maslin Kettles, Scotch and Yankee Bowls, Saucepans, Round and Oval Boilers, Glue Pots, Enameled Iron Cuspadores, plumbers' goods and a general line of Stone Hollow-ware and miscellaneous House Furnishing Goods. The book is handsomely printed, contains 40 pages and is bound in flexible cloth covers. Under date of the 15th instant, they quote to the wholesale trade, with freight allowed to New York, Boston, Chicago and St. Louis, as follows:

Dis. per cent.
Maslin Kettles, Scotch Bowls, Yankee Bowls, Enameled or Tinned....60&5
Sauce Pans, Round Boilers, Oval Boilers, Glue Pots, Mortars, Enameled or Tinned....40&5
Enameled Cuspadores....40
Gem or Waterman Bake Pans, Vienna Roll Pans, Vienna Bread Pans, Southern Cake Pans..60&10
Iron Match Safes....45
Pots, Kettles, Spiders, Round Griddles, Yankee and Scotch Bowls, Unground....55&10
Pots, Kettles, Spiders, Round Griddles, Yankee Bowls, Scotch Bowls, Tea Kettles, Long Griddles, Deep, Shallow and Patent Sad Iron Heaters, Ham Boilers, Waffle Irons, Charcoal Furnaces, Bread Pans, Ground or Polished..55&5

Samuel Loring has issued, under date of 18th inst., the revised discounts for Tacks which we print below; also, a revised price list and discount sheet for Shoe Nails, Shoe Tacks, &c., as follows:

SHOE FINDERS' LIST DISCOUNT SHEET.

[No. 44.]

PLYMOUTH, Mass., September 18, 1879.

GENTLEMEN: In consequence of the recent advance in the prices of metals, I now quote prices for Shoe Nails, Shoe Tacks, &c., as per my new Shoe Finders' List of this date, with the following

Cash Discount—10 per cent. discount for cash will be made, provided the account is paid on or before the 20th of the month following that of the sale. Terms, net cash.

Freight.—All goods delivered in Boston, New York, Philadelphia and Baltimore. Above discount subject to change without notice.

Please observe that the new shoe finders' list is not subject to the 50 per cent. discount referred to in previous circular.

I thank my customers for their liberal patronage in the past, and solicit a continuance of their esteemed orders. Yours very respectfully, SAMUEL LORING,
Proprietor Plymouth Tack & Rivet Works.

SHOE FINDERS' LIST.

SEPTEMBER 18, 1879.

Samuel Loring, Proprietor of the Plymouth Tack and Rivet Works, Established A. D. 1842, Plymouth, Mass., U. S. A.

List of Prices of Shoe Nails, Shoe Tacks, &c.

	Cts. per lb.
American Iron Shoe Nails, 4-8 in. and longer..	5½
" " 3½-8 in. and shorter.	6½
Swedes Iron "	7½
Charcoal Iron "	7
Zinc Shoe Nails	11½
" Shank Nails	14
Diamond Head Zinc Nails	17
Copper and Brass Shoe Nails	33
" Gimp Nails or Tacks	42

	Cents per lb. 2-8 and 2½-8 in.	3-8 and 3½-8 in.	4-8 in. & longer.
American Iron Hungarian Nails	10	9	8½
Charcoal Iron Hungarian Nails	10½	9½	9
Swedes Iron Hungarian Nails	11	10½	10
Swedes Iron Hungarian Nails (Fancy Head)	13	12	11
Oval Head Shank Nails	11	10½	10

Hob Nails, Swedes Iron, all sizes, 12c. per lb., in lb. or ½ lb. papers.

Hob Nails, American Iron, all sizes, 8½c. per lb., in lb. or ½ lb. papers.

Steel Shoe Nails, all sizes, 11c. per lb., in lb. or ½ lb. papers.

Steel Shoe Nails, all sizes, 4-8 in. and shorter, 17c. per M.; 5-8 in., 20c.; 6-8 in. and longer, 24c.

Channel Nails, 2½-8 in., 48c. per lb.; 3-8 in., 30c.; 3½-8 in., 26c.; 4-8 in., 24c.; 4½-8 in., 22c.; 5-8 in. and longer, 20c. Less 20 per cent.

Miners' Tacks, 3-8 in., 16c. per lb.; 3½-8 in., 14c.; 4-8 in. and longer, 11c.

Shoe Tacks, ½ oz., 74c. per lb.; ¾ oz., 48c.; 1 oz., 37c.; 1½ oz., 24c.; 2 oz., 22c.; 2½ oz., 20c.; 3 oz., 18c. Less 20 per cent.

Shoe Tacks, ½ oz., 2¼c. per M.; ¾ oz., 2¼c.; 1 oz., 2¼c.; 1½ oz., 2¼c.; 2 oz., 2¾c.; 2½ oz., 3⅛c.; 3 oz., 3⅜c. Less 20 per cent.

Countersunk Swedes Nails, 3-8 in., 20c. per lb.; 3½-8 in., 17c.; 4-8 and 4½-8 in., 15c.; 5-8 and 5½-8 in., 14c.; 6-8 in., 13c.; 7-8 in., 12c.; 8-8 in. and longer, 11c.

Iron Gimp Nails, 2¼-8 in., 48c. per lb.; 3-8 in., 34c.; 3½-8 in., 30c.; 4-8 in., 24c.; 4½-8 in., 22c.; 5-8 in., 20c.; 5½-8 in., 18c.; 6-8 in., 16c.

Concave Head Nails, Brass and Copper, 40c. per lb.

Countersunk Head Nails, Brass and Copper, 38c. per lb.

Any of the above kinds, Tinned, not specified, 4c. per lb. advance on above prices.

List discount, 10 per cent. from above list. See "Discount Circular" for discounts, terms, &c. Prices subject to change without notice.

TACK DISCOUNT SHEET.

[No. 43.] PLYMOUTH, MASS., Sept. 1879.

GENTLEMEN: In consequence of the recent advance in the prices of metals, I now quote prices for Tacks, Brads and Nails, as per "Hardware List of Prices," dated May, 1878, with the following

DISCOUNTS:

American Iron Tacks, Leathered Carpet Tacks, Finishing Nails, Trunk Nails, Clout Nails, 50 per cent. discount.

Swedes Tacks (all kinds), Gimp and Lace Tacks, Copper Tacks, 50 and 10 per cent. discount.

Tinned Swedes Tacks, 50 and 20 per cent. discount.

Tinned American Tacks, 50 and 25 per cent. discount.

All other Tack List Goods, 50 per cent. discount.

Cash Discount.—10 per cent. discount for cash will be made, provided the account is paid on or before the 20th of the month following that of the sale. Terms, net cash.

Freight.—All goods delivered in Boston, New York, Philadelphia and Baltimore. To other points an allowance will be made not to exceed 60 cents per 100 pounds from Boston, or 40 cents per 100 pounds from New York.

The above discounts subject to change without notice.

I thank my customers for their liberal patronage in the past, and solicit a continuance of their esteemed orders. Yours, very respectfully, SAMUEL LORING,
Proprietor of Plymouth Tack & Rivet Works.

The Turner & Seymour Mfg. Co., the F. C. Richard Hardware Co., Judd & Blakeslee and H. L. Judd & Co., have adopted the following prices, to take effect Sept. 24, 1879:

Porcelain Picture Knobs, with Flat Head Screws and Seats and Plated Bases....dis. 40 %
Nos.... ⅝ ¾ ⅞ 1 1⅛
$4.06 4.22 4.34 4.58 4.86
With Tin Bases....40&10 %
Porcelain Picture Knobs with Round Head Screws and Tin Bases....dis. 40 %
Nos.... ⅝ ¾ ⅞ 1 1⅛
$3.00 3.24 3.36 3.64 3.90
Porcelain Picture Knobs with Round Head Screws and Silver-Plated Bases....dis. 40 %
Nos.... ⅝ ¾ ⅞ 1 1⅛
$3.30 3.58 3.70 3.98 4.24
Porcelain Shutter Knobs, with Round Head Tinned Screws....dis. 40 %
⅝ ¾ ⅞ 1 1⅛
$2.36 2.44 2.60 2.70 3.00
1¼ 1½ 1¾ 2
$3.60 4.54 5.68 6.66
Picture Nails....dis. 30 %
Brass Head Picture Nails....dis. 40 %
Rack Pulleys, change list, 59 and 159 to $7.00; 60 and 160 to $9.00....dis. unchanged
Roller Ends, change list, No. 51, no Thimbles, to $2.70 per gross; 51, with Thimbles, to $3.10 per gross....dis. 40&10 %
Shade Brackets, change list, No. 50 to $2.00 per gross....dis. 40&10 %

The American Tool Company, No. 116 Chambers street, have issued their price list and catalogue for the season of 1879-80, in which they illustrate a very large assortment of Tool Chests for Boys', Youths', Gentlemen, Farmers' and Planters' and Mechanics' use. Introducing the catalogue they say:

We desire to call your attention to our new illustrated catalogue of Tool Chests, and flatter ourselves that we can and will give more for the money and a better article than can be had in the world. Our prices are down to hard pan, and we are offering a complete Boys' Tool Chest, from $0.16 to $5.75 each; Youths' Tool Chest, from $6 to $18 each; Gentlemen's Tool Chest, from $20 to $52.50 each; Farmers' and Planters' Tool Chest, from $50 to $125 each; Carpenters' Tool Chest, from $135 to $225 each. Special attention is called to our Tool Chest adapted for the Dollar Trade. It is the largest, contains the most tools and is the best finished Chest in the market for the money.

We invite attention to the advertisement of Bissell & Welles on page 16. They will sell by auction on Tuesday, September 30, at their salesroom, Nos. 83 Chambers and 65 Reade streets, a general assortment of Shelf Hardware, French Tinned and Enameled Ware, &c., and on Wednesday, October 1, by order of the Cutlery Association, a large quantity of second-quality goods, comprising over 12,000 dozen Table Cutlery, Carvers, Butcher Knives, &c., will be offered.

F. Willson Rogers, Secretary of William Rogers & Son, of Hartford, Conn., has just patented a new and elegant design for a Spoon and Fork Handle, which will be used exclusively by the above company. The design is illustrated in their advertisement on another page.

The Reading Hardware Company, Reading, Pa., and No. 81 Reade street, New York, have issued, under date of the 15th instant, the following discount sheet and notes of changes in list prices, to apply to their catalogue of 1877 and supplement of 1878:

READING HARDWARE COMPANY'S DISCOUNT SHEET, 1879.

Page in 1877 Catalogue. — Discount Per cent.
1-3, Apple Parers, '75, '74, '72, add new Parer '78, $8.75....net
4, Irons, Polishing or Laundry....40
4, " Sad....35
5, Coffee Mills....20
6, Scales, Tea (see new Scales)....40
6, 7, Scales, Counter and Butcher....33⅓
7, Scale Weights....10
8, 9, Twine Boxes, change list....30
Nos.... 10 15 20 25
$2.00 2.35 3.50 4.00
10, Waffle Irons....37½
11, Clamps, Quilting Frame....50&10
11, Family Grindstones....45
12, Stove Shovels....25
12, Nut Cracks....40
13, Stove Lid Lifters....30
14, 15, Stands, Sad Iron....45
15, Ventilators, Refrigerator....65
16, Stands, Coffee Pot (see Supplement)....45
17, Boot Jacks....50&15
18, Soap Dishes....35
19, Tobacco Cutters....40
20, Bench Screws, see Supplement, change list, No. 1, $7.35....37½
20, Bench Screw Handles....15
21, Saw Clamps....40
22, Braces, Iron Screw....40
22, Plumb Bobs....40
23, Friction Rollers....30
23, Grindstone Fixtures, square shaft....45
24, Grindstone Fixtures, Western, Coppered Rollers....37½
Nos.... 22½ 23 23½ 24 24½ 25
Inches.. 15 17 19 21 24 28
Per doz. $7.00 7.75 8.75 10.00 11.25 13.00
24, Grindstone Fixtures, Reading, change list, No. 12½, $7.50; 13, $8.75; add No. 14, 21 in., $11....37½
25, Grindstone Fixtures, Keystone....40&5
26, 27, Hay Fork Pulleys, add No. 2, 5-inch Swivel, $4.25....50
28, Hangers, Barn Door, New Pattern....60
28, " " Extra Heavy....50&10
28, " " Boston Pattern....45
29, " " Nos. 51 to 54....60&5
29, " " Nos. 11 to 14, and Nos. 61 to 64....60
30, Rail Barn Door, add Flat Rail, No. 5, $0.08, change list. Nos. 2, $0.08½; 11, $0.07½; 12, $0.09½....57½
30, Rollers, Barn Door....35
31, Pulls, Barn Door....50
32, Sash Weights....25
32, Well Wheels, change list, 8 in., $4.50; 12 in., $7.50; 14, $11....20&10
32, Hoisting Pulleys....20&10
33, Pump Fixtures and Spouts....33⅓
34, Thimble Skeins and Pipe Boxes....40
35, Ore Wagon Skeins....40
35, Bolts, Wood Screw and Skein Wrenches....40
36, Boxes, Wagon and Cart....40
36, Wrenches, Cast Coach....20
37, Fire Detectors....30
37, Quoits, add $1.30 per set, 3 lbs. each....30
37, Dumb Bells and Cork Squeezers....50
38, Stove Pipe Dampers....25
38, Melting Ladles....35
39, Porch Irons, Nos. 1 to 6....60&5
39, " " in Bulk, Nos. 1 and 2 only—4 cents per lb....5
39, Pew Back Irons....25
40, Turn Buckles, No. 2½ add $7 for Frame, change list....40
Nos.... 3 30 11 12
$13.50 10.00 10.75 13.25
Nos.... 13 14 23 33
$22.75 21.50 22.75 35.50
41, Shutter and Blind Fasteners....30
41, Shutter Catches....50
42, Hinges, Mayer's Drilled....65
42, Butts, Loose Joint, Drilled, Broad....60
42 " " " Narrow....60
Inch.... 2 2½ 3 3½
$1.00 1.10 1.50 1.75
43, Butts, Loose Pin, Acorn, Plain....60
44, " " " Japanned....65
45-47, Butts (not made), New Butts, in Supplement....—
48, Hinges, Alston's Shutter....70, 10&5
49, " Lull and Porter, Heavy Pattern....70
50, Blind Butts, Palmers....40&5
51, Hinges, Surface Blind....40
52, " Mortise Blind....30
52, " Blind Door....35
53, " Gate, New England, change list....60
Nos.... 1 1½ 2
$5.40 4.00 6.50
54, Hinges, Gate, State, change list, No. 4, $4.50..60
55, " " Patent....30
56, Gate Latches, St. Louis....70
56, Gate Latches, Upright....60&5
57—59, Foot Scrapers, change list....40
Nos.... 10 15 20
$0.85 1.10 1.25
60, Brackets, Store Shelf, change list....40&5
Nos.... 1 2 3 4 5 6 7 8 9
$0.60 .90 1.50 2.10 3.10 3.90 5.25 4.35 8.00
Add No. 4½, 7x9 in. No. 11, 12x14 in. 12, 12x20 in.
$2.75 $6.15 $9.80
61, Brackets, Store Shelf....40&5
62, " Cottage, change list....40&5
No. 915, 3x4 in. 920 925 930
$1.75 2.15 3.00 3.40
Nos.... 935 940 945
$4.20 5.25 6.80
63, Brackets, Rosette....45
64, 65 Bolts, Tower, B. K. Barrel and Flat Shut'r..60
65, " Cased Shutter....45
66, " Excelsior Shutter, Japanned....40
66 " " Galvanized....33⅓
67, " Square Spring and Necked....60
67, " Staples....20
68, " Spring Foot....35&10
68, " Chain, Extra Heavy, change list, 6 in., $2.90....60
68, Bolts, Chain, Extra Heavy, Reverse Bevel...55
68, " New Japanned, No. 50, 6 in., $2.25; 8 in., $2.88....50
68, Bolts, Lever Foot, No. 30, 6 in., $3.50; 8 in., $4.50; 10 in., $6.25....50
69, 70, Bolts, Square and Bottom....33⅓
71, " Chain, change list....33⅓
Nos.... 685 690
$2.90 3.25
Add Nos.... 681 686
Inch.... 6 8
$2.30 2.60
72, 73, Bolts, Chain and Foot....33⅓
74, " Square Door and Chain....33⅓
75, " Barrel, A. D. Bronzed....35
75, " " Bronze Metal....40&5
76, " " Brass....33⅓
76, " Drop Cupboard, list should be per gross....30
77, Bolts, Barrel, Brass....33⅓
77, " Flat Ship, Brass....20
78, " " Cupboard....40
79, " " and Straight Cupboard, change list, No. 4000, $2.50....37½
80, Bolts, Square Door....57½
81, " " Spring, Necked and Bronze Metal....20
82-85, Bolts, Flush, A. D. Bronzed, change list...45
Nos.... 846 847 848 849
$2.25 2.50 2.80 3.20
86, 87, Bolts, Flush, Bronze Metal....50
88-91, " " Brass, change list....20
Nos.... 3450 3455 3460
$0.60 .70 .80
Nos.... 3465 3470 3475
$0.90 1.10 1.30
92, 93, Bolts, Mortise Front Door....30
94-96, Fasteners, Chain Door, change list, No. 600, $5.50....60
97, Fasteners, Chain Door....50
98, 99, Fasteners, Chain Door, Brass....35
100, Latches, Thumb, Nos. 0 to 4....20&10
100, " " Nos. 20 to 60....10
101, Latches, Thumb, Corrugated....25
102, " Pittsburgh, add Nos. 16, Heavy, $1; with Screws, Nos. 6½, $1.40; 16½, $1.60...55
102, Latches, Cased....40
103, " Washington, Door and Gate....45
104, " Barn Door, change list, No. 11, $1.25..40
105, " Store Door, change list, No. 2, $1.75..50
106, " Thumb, A. D. Bronzed....60
107, Handles, Store Door, change list, Nos. 103, $3.50; 105, $5.25; add No. 104, $4.50, extra polished....50&10
108, Handles, Store Door, add No. 109, $5.25; Plain Finish, change list, No. 110, $6.00....50&10
108, Handles, Store Door, add No. 107, $4.75; plain finish, No. 108, $5.75, extra polished..50&10
109, 111, Handles, Store Door....50&10
111, 115, Handles, Store Door, change list, Nos. 115, $1.20; 117, $1.80....50
116, Door Pulls....50
117, 118, "....40
119-121, "....30
122-125, Drawer Pulls....37½
126, " " A. D. Bronzed....50
127-131, Drawer Pulls, change list....55
Nos.... 185 190 195 200 205
$6.75 8.00 6.25 7.00 8.25
132, 133, Catches, Cupboard....20
134, " " add No. 360½, $10; 365½, $10; change list, No. 350½, $9.25; 355½, $9.25....20&10
135, Catches, Cupboard....25
136, 137, Catches, Cupboard....20
137, Catches, Lever Cupboard and Elbow....30
138, " French Window, add No. 395½, $8.60; 400½, $8.60; 409, $9.50; 414, $9.50....35
139, Catches, French Window, Bronze Metal....20
139, " " " Brass....30
140, 141, Latches, Cupboard, change list, No. 520, $1....30
142, Cupboard Turns, change list, No. 1435, $7.20; 1440, $8.25....40
143, Catches, Show Case....20
143, Hooks, Cabin Door....10&7½
144, Handles, Brass Lifting (see Supplement)....20
144, " Surface Chest....55
145, " " "....55&7½
146, Door Buttons, Japanned, add No. 49, 1¼ in., 45 cents; 54, 2½ in., $1.50; 64, 2½ in., $3.40..33⅓
146, Door Buttons, Brass, change list, No. 4110, $9.75....20
147-151, Hooks, Wardrobe & Ceiling, change list.40
Nos.... 100 102 105 106 120 125
$2.10 2.30 1.70 1.90 1.35 1.55
152-159, Hooks, Hat and Coat, change list....40
Nos.... 400 410 420 430 415 425
$0.95 1.10 1.25 1.45 1.30 1.50
Nos.... 435 50 55 75 80
$1.70 1.80 2.00 1.65 1.80
Nos.... 79 83 82 86 180
$2.15 2.40 ?.25 3.50 2.10
Nos.... 185 190 195 200 205
$2.25 2.40 2.60 3.50 3.75
160, 161, Hooks, Hat and Coat, Wardrobe and Hat....33⅓
162, 163, Hooks, School-House, Baggage Check, change list....40
Nos.... 140 145 130
$2.90 3.15 3.75
163, 164, Hooks, Harness, change list, Nos. 170, $1.30; 160, $5; 165, $1.05; add No. 169, 6 in., $1.15; 168, 10½ inch, $4.50....40
165, Hooks, Clothes Line, change list....40&5
Nos.... 5 25 27 30 35
$0.40 0.90 1.10 1.10 2.00
166, Hooks, Bird Cage....55
167, Hooks, Bird cage, see Supplement, change list, No. 990, $2....60
168, Hooks, Lamp, Japanned....50
168, " Headboard....25
169, " Brass Screw....33⅓
169, " " Acorn Tip, should read:
Nos.... 5140 5142 5145 5147 5150 5152
Inch.... 1¼ 1½ 1¾ 2 2½ 3 } 33⅓
Per gro. $4.35 4.75 5.00 5.30 6.00 7.70
169, Hooks, Lamp, Brass....50
170, 171, Sliding Door Steps, Sheaves and Rail...45
172, 173, Pulleys, Frame, change list....50
Nos.. 11 12 13 14, 2½ in. 111 112 113
$0.50 .58 .75 1.40 .60 .70 .90
179, 186, Pulleys, Axle....50
Add Nos. 57, 1¾ in. 60, 2 in. 175, 2½ in. 176, 2½ in.
$2.54 .63 1.60 1.75
Change list, Nos. 15 16½ 200 210 177
$0.50 .58 1.10 1.35 1.25
187, Pulleys, Dumb Waiter....25
188, " Iron Screw, Japanned....40
188, " Brass "....20&10
189, " Iron " Incased....35
189, 190, Pulleys, Upright, Curtain and Side....40
191, Pulleys, Awning, add 2½ in., No. 55, Single, $2.40; 56, Double, $3.30....50
192, Pulleys, Clothes Line, add Nos. 61, 2½ in., $2.25; 62, 3 in., Galvanized, $3.45....50
192, 193, Pulleys, Clothes Line, add Nos. 68, 3 in. Jap'd., $1.95; 69, 3 in., Galvanized, $3.15....50
194, Pulleys, Hot-house....45
195, Sash Rollers, change list....35
Nos.... 20 25 30 35 40
$0.35 0.40 0.50 0.75 1.10
196, 197, Sash Cord Irons, Locks and Props....33⅓
197, Sash Locks, Sholl's Patent....25
198, 199, Sash Fasteners, change list....25
Nos.. 23 24 25 26 37 38 42
$0.63 .67 .72 .75 .70 .80 add 2.00
200-203, Sash Fasteners, change list....25
Nos.... 717 727 726½ 727½
$1.35 0.90 add 0.65 0.80
204, 205, Sash Fasteners, Brass & Bronze Metal..30
206, Shutter or Sash Knobs, change list....40
Nos.... 25 1285 1290, 1⅛ in.
$1.25 1.50 add 2.00
207, Sash Lifts, A. D. Bronzed, add No. 302 Extra Polished, $3.50....37½
208, 209, Sash Lifts, add No. 314, A. D. Bronzed, $0.65; 1314, Bronze Metal, $4.25....37½
209, Flush Rings, Brass....30
210-212, Shutter Bars, A. D. Bronzed, change list, No. 567, $0.75; 56, $0.85....37½
212, Shutter Bars, Brass....25
213, " " Bronze Metal, add No. 1567, 2 inch, $2.80....35
214, Ox Balls, Brass....20
215, Sash Centers or Transom Plates....50
216, 217, Stubbs and Plates, Shutter Screws and Lifts....37½
218, Plate Casters, All Iron, change list....40
Nos. 1 2 3 4 5 6 7
$0.09 0.10 0.11 0.14 0.15 0.19 0.26
218, Plate Casters, Porcelain Wheel....40
218, " " Lignum Vitæ Wheel, change list....40
Nos. 1 2 3 4 5 6 7
$0.12 0.14 0.15 0.18 0.20 0.24 0.30
218, Plate Casters, Brass Wheel, change list, No. 3, $0.32; 4, $0.41....40

Bed Casters..New List.

218, All Iron, per set....40
Nos.... 1⅝-0 1⅝-1 1⅝-2 2-0 2-1 2-2 2-3
$0.10½ .11 .13 .15 .17 .20 .22
218, Wood Wheel, per set....40
Nos.... 1⅝-0 1⅝-1 1⅝-2 2-0 2-1 2-2 2-3
.. .15 .16 .. .18 .22 .25
218, Porcelain Wheel, per set....40
Nos.... 1⅝-0 1⅝-1 1⅝-2 2-0 2-1 2-2 2-3
$0.15 .16 .18 .21 .24 .27 .35
218, Lig. Vitæ Wheel, per set....40
Nos.... 1⅝-0 1⅝-1 1⅝-2 2-0 2-1 2-2 2-3
.. $0.16 .18 .. .24 .27 .35
218, Bed Casters, Globe Wheel....40

French Casters—New List.

Nos.... 2 3 4 5
219, Iron Horn, Ir'n Wh'l, pr.set $.12 .13 .15 .20..40
219, " Porc'l'n Wheel, " .16 .18 .22 .27..40
219, " Lig. Vitæ " " .16 .18 .22 .27..40
219, " Brass " " .27 .34 .41 .50..40
Nos.... 12 13 14 15
219, Bra's H'rn, Porc'ln, " " $0.35 .40 .45 .55..40
219, " Lig. Vitæ " " .35 .40 .45 .55..40
219, " Brass " " .45 .55 .65 .75..40
220, Bed Casters, Bracket....40
221, Casters, Store Truck....50
222, Wheels for Store Trucks....37½
222, Table-leaf Supports, add No. 0, 10½ in., $1.25....45
223, Brackets, Window Shade, change list, No. 1, $1.90....45
223, Roller Ends, add No. 4, $4.50, without Thimbles....45
224, 225, Racks, Window Shade....40
226, 227, Bed Fasts....20
228, Gong Bells, Double Stroke....35
229, House Bells, on Carriages....40&10
229, " Bell Metal and Bronzed Steel..10
230, 231, Bell Cranks, Check Springs and Bell Spikes....25
232, Bell Pulls, Slide....30
233-239, Stationery Goods, change list, No. 486, $0.80; 487, $1.15....30

Pages 241 to 352 contain Locks, Knobs and Escutcheons. Extra discount of 10 per cent. for cash in 30 days.

DISCOUNT SHEET TO SUPPLEMENT OF 1878.

Pages 355 to 384 contain Locks, Knobs and Escutcheons.

Page in 1878 Supplement. — Discount Per cent.
384-387, Handles, Store Door, Bronze Metal, change list....50&10
Nos.... 1132 1134 1137 1139
$9.80 11.00 11.50 12.25
388, Handles, Store Door, A D Bronzed....40
389, Screen Door Catches, add No. 446, $8.40, change list, No. 445, $6.75....50&5
390, 391, Hinges, Inside Shutter....55
392, Butts, Loose Pin, Japanned, No. 18, without Screws, style and list as No. 20....65
392, Butts, Loose Pin, Japanned, No. 20, packed with Screws....62½
393, Butts, Loose Joint, Japanned, No. 25, packed with Screws....60
394, Butts, Loose Pin, A D Bronzed, No. 30....66⅔
395, " " Joint " No. 40....66⅔
396, " " Pin, Bronze Metal, No. 60....65
397, Genuine Bronze Metal Loose Joint Butts, Complete with Bronzed Screws....66⅔
No. 65, Steel Bushed, Drilled.
Inch.... 3x3 3½x3½ 4x4 4½x4½ 5x5
Per Pair...$3.60 $4.10 5.10 6.37 7.20
397, Butts, Loose Joint, Bronze Metal, No. 70, change list, 5½x5½ in., $11.75....70
398, Butts, Narrow Fast Joint, Drilled....50
398, Broad Fast Joint Butts, Drilled....50&10
Inch.... 2x2 2½x2½ 2x2½ 3x3 3x3½
Per Doz. Pr..$1.00 1.35 1.60 1.75 1.95
Inch.... 3½x3 3½x3½ 3½x4 4x3½ 4x4
Per Doz. Pr.. $2.15 2.35 2.50 2.70 2.90
Inch.... 4½x4 4½x4½ 5x5 5½x5½ 6x6
Per Doz. Pr. $3.50 4.00 5.50 6.50 7.60
398, Butts, Parliament, Drilled....60
399, Casters, Store Truck....50
400, Pulleys, Frame....50
400, " Screw, Incased....40
401, " Tackle....33⅓
402, Shutter Bars, Brass....25
402, Handles, Brass Lifting....20
402, " Japanned Lifting....50
403, " Flush Chest....50
403, Trap Door Rings, Flush....50
404, Plumb Bobs, Brass....40
404, Bench Screws, Iron, change list, No. 21, $7; 23, $9.50....37½
405, Barn Door Stays, change list, No. 2, $1.85....50
405, Sash Centers or Transom Plates....45
405, Gate Latches....70
406, Brackets, Cottage....40&5
407, Hooks, Hat and Coat, A. D. Bronzed, add No. 957, $7.65....45
408, Hooks, Chandelier, change list....30
Nos.... 51 52 52½, 6 in. 951 952
$0.50 .60 .95 .90 1.10
Nos.... 952½, 6 in. 953 954 954½, 6 in.
1.50 1.00 1.35 1.75
409, Hooks, Hat and Coat, change list, No. 70, $1.50; 71, $1.65....40
409, Hooks, Hat Rack and Bars....50
410, Line Cleats....60
410, Coal Tongs, Spring, add No. 12, 18 in., $3.75..net
410, Hooks, Clothes Line, change list, No. 29, $0.90....50
411, Window Spring Bolts, add No. 21, $5.00; 23, $6.00....50
411, Window Springs, Nos. 6, 7, 9, 10, change list, No. 9, $7.00; 10, $9.35....50&10
412, Latches, Cupboard....25
412, Catches, French Window....30
412, " Cupboard....15
413, Cupboard Turns....40
414-416, Sash Fasteners, change list, Nos. 746, $3.30; 1746, $5.00....25
417, Door Pulls, change list, No. 154, $1.00; add 1154 $4.80, Bronze Metal....45
417, Latches, Thumb, A. D. Bronzed....60
418, Drawer Pulls....55
419, Twine Boxes....10
420, Hooks, Bird Cage, change list, No. 68, $2.00..60
421, " Paper File....30
422, Stands, Coffee Pot....45
422, 423, Pen Racks, A. D. Bronzed....30
424, 425, Match Safes, "....60
Extra discount of 10 per cent. for cash in 30 days.

IRON.

American Pig.—We hear of a large business transpiring in a quiet way, but particulars are withheld. The demand continues out of all proportion to the visible supply, and prices in consequence continue to move rapidly upward. Rumors are current of sales at higher figures than have yet appeared in these reports, and we have positive information of transactions in Gray Forge Iron at $27. In the present excited condition of the market it is impossible to more than give the asking figures at the close of business to-day. We quote, nominally: Foundry No. 1, $28 @ $30; Foundry No. 2, $26 @ $28; Gray Forge, $27.

Scotch Pig.—There is very little Scotch Iron on the market, and the arrivals since our last writing, amounting to about 600 tons, were previously disposed of. We quote: Eglinton, $24 @ $25; Glengarnock, $27 @ $28, and Coltness $28, nominally.

Rails.—There are inquiries on the market for large lots of Steel Rails for 1880 delivery, which are expected to result in business before many days. For Iron Rails there is also some inquiry, but no transactions of much magnitude are reported in either grades. We repeat former quotations, viz.: Iron, $40 @ $42; Steel, $49 @ $50.

Old Rails—Are in active request and some large transactions have taken place at very full figures, but particulars are withheld. We quote, nominally, $28 @ $30, although we hear rumors of transactions at a higher price.

Scrap.—Sales are reported of 600 tons No. 1 Wrought at $30 @ $31. The stock here is light and the nominal quotation is $32.50 from yard.

METALS.

Copper.—The revival in general business has had a beneficial influence on the trade in Copper manufactures, and under the stimulus of an active and steady demand for them, makers have considered themselves justified in establishing a higher range of values, which in its turn has enhanced rates of the raw material. Sales of Lake Superior Copper have during the week aggregated some 500,000 to 600,000 pounds at 17¢ @ 17½¢, and the closing price is 17½¢ @ 17¾¢. Baltimore is nominally worth as much. The stock in second hands is small, and the companies are holding aloof to let the market have its own way. According to news from the West Coast, the chances of mediation and an armistice are not flattering. There seems to be a proposition to have a meeting of delegates from all South American States having frontier disputes, at Washington. "London, Sept. 13, 1879.—This market has remained very active throughout the week, and prices are rapidly advancing. Extensive transactions are reported from day to day to be taking place, and the position of the market is now much stronger than has been the case during the past few months. Inquiries are chiefly for the raw material, as contracts for manufactured are still limited, neverthelesss sellers of the latter are considerably raising their quotations, owing to the higher prices realized for the former. Whether the improved tone will be permanently maintained remains to be seen." There has been an advance in the combination prices of Manufactured Copper of 2 cents, and the following revised list takes effect from the 22d inst.: New Sheathing Copper, 24¢; Braziers, 26¢ and Bolts, 26¢; Bottoms, 28¢; American Yellow Sheathing Metal, 13½¢; Yellow Metal Bolts 20¢, and English Yellow Sheathing Metal, 12¢ @ 12¼¢, in bond.

Tin.—Since our last week's review the market has been quiet for a few days, but London again cabling £74 for Straits at the close, with an upward tendency, it is stronger again, and we quote large lines of Straits on the spot 17¼¢ @ 17½¢; English Common, 16¾¢ @ 17¢, and Banca, 18½¢ @ 18¾¢. The arrivals have been 2500 slabs Straits and 200 slabs Banca. The shipments from the Straits during the first half of the present month have been 450 tons to the United States and 110 tons to the United Kingdom. The New York market is characterized by an excellent jobbing demand, in consequence of which a confident tone pervades the trade, and higher prices are expected. During the week London suddenly gave way several pounds per ton with Straits Tin, but speedily recovered and, as has been shown above, is as high as ever. The following passage we take from a London report, dated Sept. 13: "This metal is rapidly increasing in value, owing to the continuance of good deliveries and moderate supplies. Since our last issue prices have risen to the extent of about £3 per ton, Foreign Tin now being quoted at £73. 10/ @ £74, and English £75 for ingots, £76 for bars in 4 cwt. barrels, and £76. 10/ 2 cwt. barrels. There is a fair demand for consumption, and speculators are showing some activity, which gives an animated appearance to the market. Should the imports during the remainder of the month keep as limited as they have during the earlier part, and the deliveries as well maintained, there is every reason for expecting the next statistics to show a further reduction in stocks. There is a very marked falling off in the supplies from Australia, chiefly, it is said, on account of the miners finding it difficult to make profits at recent rates." *Tin Plates* are strong and buoyant, with a good general demand. We quote large lots, ordinary brands, per box: Charcoal Bright, $6.25 @ $6.50; ditto Ternes, $5.75 @ $5.87½; Coke Tin, $5.12½ @ $5.50, and ditto Ternes, $5.25. "London, Sept. 13.—At the early part of the week the Tin Plate men resumed work at the former scale of wages, but with certain restrictions of make; working days increased to five instead of four days per week; but the production will, it is said, not be increased, on account of the restriction above referred to.

Lead.—Manufacturers have gone in at the break, which took place at the time we penned our last report, in view of the poor prospect of supplies in the immediate future,

especially also from California, whence little or nothing is coming, and all small outside lots being sold. This circumstance led to various transactions, consumers buying at the time some 250 tons at 3¼¢, and 800 to 900 tons at 3.80¢ @ 3.85¢; the price of Common Domestic may at the close be written 4.10¢ @ 4.12½¢, asking price, with all small lots absorbed. Refined may be quoted 4.20¢ @ 4.22½¢. "London, September 13.—The export of Lead from Great Britain to China and Japan has been as follows: To China—During August, 1879, 325 tons; since January 1, 1879, 4469; same time 1878, 1385; same time 1877, 10,149. To Japan—Since January 1, 1879, 351 tons; same time 1878, 864; same time 1877, 1384. There is hardly any change to be reported in the state of this market. Quotations are firm, though there is no advance upon last week's figures, the limited demand preventing any rise taking place." There has been no change in manufacturers' prices. We quote Bar, 5¢; Pipe, 5½¢; Sheet, 6¢; Tin-lined Pipe, 12¢; No. 1 solder, 10¢, all less 10 per cent. to the trade.

Spelter and Zinc.—Domestic Spelter has been moderately active, and has been jobbing at 6¢ @ 6⅛¢. We quote the same 5¾¢ @ 6⅛¢; Refined ditto, 8¢ @ 8¼¢; Silesian, 6¢ @ 6¼¢ with sales, and Bergenport, from Lehigh ore, 9¢. "London, Sept. 13.—This metal has shown a still further advance in value of about 10/ to 15/ per ton, to-day's price for Silesian being £18. 15/ to £19 per ton, at which quotation the market closes firm. There is a very fair demand for home consumption, but shipping orders to India continue of a limited character. There is not much doing in English hard, and sellers quote about £14 per ton. *Sheet Zinc* we quote 7⅜¢ @ 7¾¢.

Nickel.—We are in receipt of late news from New Caledonia, where the production of Nickel had been resumed on a moderate scale. We quote American here, $1.25, with a moderate demand.

Antimony.—Since our last report the London market has been advancing rapidly and uninterruptedly, and after some sales here at 16½¢, 17¢ is now insisted upon by holders.

COAL.

The steady course of the market during the week was hardly broken by the auction sale yesterday. The retail dealers have recently been reducing their stocks very materially, and at the same time have placed orders as fast as possible in order to fill up. We find by inquiry among the retail men that they feel confident as to the future course of Coal, and mean to take advantage of it. No matter how much it may fall in the future, it cannot go so low as to make the stock they have unsaleable. Large consumers in this city are buying largely, and, in fact, putting away as much Coal as they can find room for. The demand for Coal is steady. Buyers are ready to take all that they can get and at the present figures, but they know the weakness of the market w d they buy very deliberately, as it ere, giving not the slightest opportunity for the seller to advance the price. There is considerable delay in obtaining some sizes and kinds, and we find that nearly all the companies have as many orders as they can fill at the current rates. It almost seems as though the demand for Coal, at the present figures, is unlimited. The market, however, is so weak that in spite of this large consumption nothing satisfactory can be gained by it. It has been remarked that this is the first season for a great many years when there has been steady uninterrupted mining for the whole year.

The auction sale yesterday seems to have been a very fair indication of the market. We heard of some little placing by interested parties in order to effect a little combination at the sale, and so bolster the price a little, but from all that we can learn we think that the sale was perfectly free and uninfluenced by any such considerations.

The following are Mr. Saward's averages of yesterday's auction sale of Scranton Coal.

		Average.
25,000 tons of Grate sold at		$2.98
20,000 " Egg	"	2.11
45,000 " Stove	"	2.36
10,000 " Chestnut	"	2.30

The averages of previous sales since April are as follows:

	Stmr.	Grate.	Egg.	Stove.	Ch't.
Aug. 26	....	$2.04¼	$2.15	$2.38	$2.20
Aug. 13	....	2.02	2.12½	2.33½	....
July 30	....	2.30	2.45	2.75	2.56¼
June 25	....	2.17½	2.20½	2.36	2.41½
May 28	2.09	2.03¾	2.10½	2.41	2.27½
April 30	2.02½	2.03	2.09½	2.39½	2.28½
April 9	2.03¾	2.00¼	2.09¾	2.48¾	2.27½

Prices, as usual, are for the moment based upon the sale, with the usual differences due to quality of Coal, place of shipment, &c. Lehigh Coals, especially in the larger sizes, are somewhat scarce, while the fall demand for the smaller sizes is beginning to be felt. While prices are nominally the same as last week, no circulars have been issued, and the actual prices are somewhat below the nominal quotation.

The Pennsylvania Coal Company quote: Lump, Steamer and Grate, $2.20; Egg, $2.25, and Stove, $2.50. Philadelphia and Reading prices are: Broken, Egg and Stove, $2.60; Chestnut, $2.50. This is for Hard White Ash, alonside in New York, the other Coals ranging in the usual proportion below this. For shipment beyond the Capes they quote: Broken and Egg, at Philadelphia, $2.25; and Stove, $2.30.

OLD METALS, PAPER STOCK, &c.

We note a considerable improvement in the Old Metal market since our last review. There has been a general advance in prices. The demand is quite active and the market is firm as quoted. The Rag and Paper Stock market is firm, but prices remain unchanged.

The purchasing prices offered by dealers for Old Metals are as follows:

Copper, heavy	per lb.	$0.12½ @	....
Copper Bottoms	"	.10 @	....
Yellow Metal	"	.08 @	.08½
Brass, heavy	"	.08 @	.08½
Brass, light	"	.07 @	....
Composition, heavy	"	.10 @	.10½
Lead, solid	"	.03 @	.03¼
Tea Lead	"	.02¾ @	.03
Zinc	"	.03 @	....
Pewter, No. 1	"	.10 @	....
Pewter, No. 2	"	.06 @	.07
Wrought Iron	pr. cwt	.75 @	....
Light do	"	.40 @	....
Stove Plate	"	.35 @	.40
Machinery do	"	.50 @	....

The prices current for Rags, &c., are as follows:

Canvas, Linen	per lb.	3 c. @	3½c
White Cotton, New	"	4½c. @	....
" " No. 2	"	1¼c. @	....
White, No. 1	"	3¾c. @	4 c.
" No. 2	"	2½c. @	2½c
Seconds	per lb.	1½c. @	..
Mixed, Woolen	"	2 c. @	3 c.
Soft, do	"	9 c. @	c.
Mixed Rags	"	2 c. @	3 c.
Gunny bagging	"	3 c. @	....
Jute butts	"	2¼c. @	..
Kentucky bagging	"	2¾c. @	..
Book Stock	"	2 c. @	2½c.
Newspapers	"	1¼c. @	1¼c.
Waste Paper and Scraps	"	¾c. @	..
Kentucky Bale Rope	"	4 c. @	....
Tarred Shaking	"	1 c. @	1¼c.
Grass Rope	"	2½c. @	..

EXPORTS

Stettin.

	Quan.	Value.
Ptlm., gals	310,781	$23,022

Danzig.

Ptlm., gals.	361,119	25,536

Elsinore.

Ptlm., gals.	154,836	10,645

Hamburg.

Ptlm., gals.	458,967	34,000
Pit'dware, cs.	1	82
Mach'y, pkgs.	19	2,375
Belting, bxs.	8	2,000
Hdw., pkgs.	84	1,428
Glassw'e, pgs	8	115
Sew. mach, cs.	1,422	23,453
Mf. iron, pkgs	105	2,225
Ag. imp., pkgs	2	100

Bremen.

Cutlery, cs.	1	100
Cages, cs.	2	50
Belting, cs.	3	203
Hdw., pkgs.	93	514
Ag. imp., pkgs	2	140
Ptlm., gals.	266,194	18,301
Sew. mach., cs	12	500
Mf. iron, pkgs	19	552
Lub. oil, gals	247	124

Rotterdam.

Lub. oil, bbls.	525	5,752
Mf. iron, pkgs	16	124
Pitdware, cs.	2	179
Mach'y, pkgs.	9	130
Hdw., pkgs.	44	874
Ag. imp., pkgs	10	575

Exmouth.

Ptlm., gals.	142,173	11,368

Newcastle.

Ptlm., gals.	113,945	7,980

Antwerp.

Ptlm., gals	1,014,933	66,453
Pitdware, cs.	5	920
Belting, c's.	2	600
Cutlery, cs.	5	139
Castings, pgs.	11	87
Pumps, pkgs.	7	410
Hdw., pkgs.	49	2,030

Bristol.

Ptlm., gals.	114,649	8,350

Hull.

Hdw., pkgs.	109	1,747
Sew. macn., cs	101	1,515
Pumps, pkgs.	1	21
Ag. imp., pkgs	9	510
Pitdware, cs.	4	173
Ptlm., gals.	128,731	8,521
Lub. oil, bbls.	25	135
Slates, cs.	21	102

Belfast.

Ptlm., gals.	264,961	18,543

British Guiana.

Ptlm., gals.	5000	400
Hdw., pkgs.	14	208
Pitdware, cs.	1	47
Glassw'e, pgs.	125	504
Nails, kegs	12	44

Liverpool.

Hdw., cs.	146	8,359
Lub. oil, gals.	4,156	2,148
Glassw'e, cs.	21	138
Metal g'ds., cs	17	1,914
Platedw're, cs	2	1,050
Type, pkgs.	5	600
Mf. iron, pkgs	2	113
Ptlm., gals.	316,406	21,960
Mach'y, cs.	49	5,671
Sew. mach., cs	12	1,868
Meters, bxs.	4	400
Pistols, cs.	1	400
Ag. imp., pkgs.	12	450

London.

Mach'y, cs.	5	1,889
Car wheels	100	800
Slates, cs.	3	146
Belting, bale	1	801
Hdw., cs.	399	4,123
Glassw'e, cs.	3	20
Wringers	30	920
Pumps, pkgs.	2	130

British North American Colonies.

Springs, bdls.	125	935
Tinware, pgs.	10	25
Mf. iron, pkgs	44	324
Hdw., cs.	2	52
Coal, tons	793	2,228
Glassw'e, pgs.	5	88

British West Indies.

Nails, kegs	11	38
Tinware, cs.	10	176
Ptlm., gals.	26,601	2,486
Hdw., pgs.	64	755
Mf. iron, pkgs	28	272
Glassware, pgs	24	240
Ag. imp., pkgs	4	77

British Honduras.

Glassw'e, pgs	21	193
Ptlm., gals.	2,083	215
Notions, cs.	9	570
Nails, kegs	52	147
Hdw., pkgs.	16	266
Sew. mach., cs	2	25

Glasgow.

Lub. oil, gals.	432	153
Hdw., cs.	13	376
Mf. iron, pkgs	19	393
Guns, cs.	2	227
Sew. mach., cs	1	45
Mach'y, pkgs.	36	1,933
Car wheels	320	1,441
Belting, bale	1	473

British Possessions in Africa.

Ptlm., gals.	13,000	1,450
Lub. oil, gals.	1,700	770
Mf. iron, pkgs	75	290
Hdw., cs.	246	2,545
Ag. imp., pkgs	280	5,630

British Australia.

Hdw., cs.	187	3,607
Wringers, cs.	5	84
Axles, cs.	4	112
Slate mt., pgs	44	808
Mach'y, pkgs.	505	30,630
Plated wa., cs	99	4,725
Mf. iron, pkgs	40	936
S rollers, cs.	10	116
Ag. imp., pkgs	15	248
Pumps, pkgs.	7	370
Ptlm., gals.	48,000	4,800
Wash. ma., cs	4	152

New Zealand.

Ptlm., gal.	16,320	1,842
Pumps, pkgs.	9	150
Sew. mach., cs	12	423
Mach'y, pkgs.	6	140
Slates, pcs.	16,000	640
Hdw., cs.	155	4,547
Nails, kegs	30	60

Havre.

Silverware, cs	1	181
Ag. imp., pgs.	4	307
Hdw., cs.	1	10

IMPORTS

Of Hardware, Iron, Steel and Metals into the Port of New York, for the Week ending Sept. 23, 1879:

Hardware.

Baldwin Bros. & Co.
Tubes for gun barrels, cs., 2
Bliss & Williams,
Machinery, cs., 1
Boker Hermann & Co.
Hdw., cs., 40
Hdw., csks., 11
Drexel, Morgan & Co.
Machinery, cs., 1
Edgar & Loewi,
Hdw., cs., 2
Folsom H. & D.
Arms, cs., 13
Mdse., pkgs., 2
Friedmann & Lauterjung,
Mdse., pkgs., 4
Fuller Bros.
Chain, cs., 3
Henderson Bros.
Machinery, pieces, 6
Hermann H. & Co.
Mdse., pkgs., 23
Hodgkins & Haig,
Guns, cs., 1
Hdw., cks., 1
Lewis Bros. & Co.
Machinery, cs., 1
Mason John W. & Co.
Wire rope, coils, 8
McCoy & Co.
Jacks, 22
Levers, cs., 1
Cutlery, cs., 1
Gun caps, cs., 6
Merchants' Dispatch Co.
Cutlery, bx., 1
Guns, cs., 2
Moore's J. P. Sons,
Arms, cs., 7
Gun caps, cs., 12
Planet Mills Mfg. Co.
Jute mach'y, cs., 3
Pomeroy L. W. Jr.
Machinery, pkgs., 3
Reed & Barton,
Mdse., pkgs., 2
Rogers Henry.
Mdse., pkgs., 5
Schoverling, Daly & Gales,
Gun caps, cs., 9
Mdse., pkgs., 13
Arms, cs., 13
Tubes for barrels, cs., 2
Schuyler, Hartley & Graham.
Mdse., pkgs., 3
Arms, cs., 7
Sellers W. B.
Mdse., pkgs., 2
Smith A. & Sons,
Machinery, cs., 16
Van Nest Abraham R. & Co.
Hdw., cs., 2
Waefelaer & Duysters,
Iron hook nails, cks., 24
Williams & Guion,
Anvils, 92
Western Electric Mfg. Co.
Mdse., pkgs., 33
Wiebusch & Hilger
Hdw. Co.
Cutlery and hdw., pkgs., 33
Windmuller L. & Roelker,
Arms, cs., 17
Witte J. G. & Bros.
Cutlery, cs., 4
Wolffe, R. H. & Co.
Mdse., pkgs., 2
Wolff S. N. & Co.
Mdse., pkgs., 4
Order,
Anvils, 52
Anvils, bxs., 1081
Arms, cs., 14
Coal, tons, 1510
Files, cks., 19
Guns, cs., 1
Gun barrels, cs., 12
Hdw., pkgs., 10
Machinery, cs., 5
Wads, cs., 6

Iron.

Brown Bros. & Co.
Iron rods, bdls., 270
Corbin P. & F.
Pig, tons, 5
Crocker Bros.
Pig, tons, 115
Drexel, Morgan & Co.
Pig, tons, 425
Haigh J. L.
Wire rods, bdls, 728
Henderson Bros.
Pig, tons, 100
Wire rods, bdls., 54
Irvin, Richard & Co.
Pig, tons, 300
Lee Jas. & Co.
Pig, tons, 800
Marvel Wm. D.
Ore, tons, 268
McCoy & Co.
Bundles, 960
Middleton & Meredith,
Gal. iron, cs., 37
Milliken & Smith.
Wire rods, bdls., 505
Naylor & Co.
Spie'eisen, tons, 135
Perkins, Livingstone, Post & Co.
Kilogs., 100,000
Cases, 475
Williamson Jas. & Co.
Pig, tons, 200
Order,
Bundles, 32
Cotten ties, bdls., 10,000
Fish plates, bdls., 223
Hoop iron, bdls., 5800
Old flange rails, kilogs., 600,000
Old rails, 972
Old rails, pcs., 2210
Ore, tons, 2536
Pig tons, 10
Puddled bars, kilos., 10,250
Rails, tons, 480
R. R. iron, bars, 10-, 836
Scrap, a quantity,
Sheet iron, bdls., 166
Spiegel'sen, a quantity,
Spieg'eisen, kilogs., 301,500
Spieg'isen, tons, 456

Metals.

Agostini J.
Old copper, box, 1
Arnold, Hines & Co.
Manganese, cs., 5
Bache, Semon & Co.
Tin sheets, cs., 8
Baring Bros.
Tin plates, bxs., 59
Heroy & Marrener,
Tin foil, cs., 4
Holly A. L.
Metal, cs., 1
Meyer G. & E. A.
Zinc oxide, csks., 200
Naylor & Co.
Tin plates, bxs., 88
Phelps, Dodge & Co,
Tin plates, bxs., 1396
Black tag., bxs., 115
Banca tin, slabs, 200
Order,
Lead pigs, 400
Tin plates, bxs., 26,-435
Tin, slabs, 2

Steel.

Baring Bros.
Scrap, tons, 38 1-5
Brown Wm.
Bars, 3
Bundles, 129
Eddy G. M. & Co.
Cases, 1
Naylor & Co.
Sheet steel, cs., 7
Bar steel, cs., 30
Bars, 3
Cases, 2
Order,
Bundles, 4
Packages, 14

PHILADELPHIA.

Office of *The Iron Age*, 220 South Fourth St.
PHILADELPHIA, September 23, 1879.

Pig Iron.—The market has again been excited and irregular, prices showing an advance for the week of from $2 to $4 per ton. Scarcity of supplies seems to be the feature of the market, and buyers from all sections of the country are applying for quotations, which in the majority of cases, cannot be given, as the furnaces are already largely oversold, and considerably behind with deliveries. The immediate outlook is good, and notwithstanding the rapid advance in prices, there are no indications whatever that the upward course of the market will for the present meet with any serious check. The demand is so urgent, consumption so large, prospects of business throughout the country so encouraging, and confidence so completely established, that a reaction is scarcely thought of. The element of danger seems to be in the large importations of foreign Iron, which if continued may eventually cause a sharp reaction. Prices are understood to be advancing in England, which, with the higher rates of freight, are nearly equivalent to $3 or $4 per ton, with prospects of further advance in sympathy with the market. The real source of strength, as we have said, is in the enormous consumption, which there is every reason to believe will be permanent for a long time to come. Probably it would be for the best interests of the trade if prices were to remain about as now quoted, but if buyers show a willingness to pay an advance in every new transaction, it is not surprising that sellers stand out for it, especially when the demand is far greater than the supply. It seems to be pretty well understood that the scarcity of ores will for a considerable time prevent any important increase in the output of the furnaces, so that there is a basis of strength such as the market has probably never known before. At the same time it must not be forgotten that the advance has been about $10 per ton since the first of the year, and it will be contrary to precedent if there is not some reaction before long, although, as stated, there seems to be no indications of it at present. Quotations to-day are as follows: No. 1 Foundry, $28.50 @ $30, asked; sales at $28 @ $29; No. 2 do., $28, and sales at $27.50. Gray Forge, $27, with sales at that price. Scotch Iron has been sold in large blocks as follows: Eglinton, $23.50; Glengarnock, $25; Gartsherrie, $26, now held at higher figures.

Blooms.—The market is bare of stock, and prices have advanced to the following quotations, viz.: Sunken Scrap Blooms (2464 lb), $43 @ $45; Northern Ore Blooms (2240 lb), $39 @ $43; best quality Charcoal Billets (2240 lb), for wire and steel purposes, $64 @ $66; Bars, $68.50 @ $71; Sheet Iron Blooms, cornered (2464 lb), $59 @ $61; Cold-blast Charcoal Plate Blooms, $58 @ $60; run-out Anthracite, $51 @ $53.50.

Muck Bars.—The market has again been very active, and stocks appear to be completely exhausted. Sales have been made at $41, at mill, which price is now bid, but sellers are not offering. Foreign is quoted at $44 @ $45, Philadelphia delivery, and if the demand continues it is quite likely that importations will be made. Meantime prices are quite nominal at $41 @ $42.

Structural Iron.—There is a steady demand, and manufacturers get all the business they can handle at about last week's prices. Prospects are quite encouraging, and there is little doubt that the demand will be maintained, as there is a large amount of work in sight. Quotations are nominally unchanged, but it would be difficult to place orders unless at some advance, especially in the case of large lots. Sales have been made during the week as follows: Angles, 3¢ @ 3.2¢; Beams, Channels and Tees, 3.5¢ @ 3.6¢.

Plate and Tank Iron.—The demand continues without abatement, but it is almost impossible to place orders, as the mills are full of work, and are therefore unable to accept contracts unless for distant deliveries. The unsettled condition of material, &c., renders it unsafe to enter into such contracts, so that a large amount of the product now turned out is on account of previous engagements. Buyers are prepared to accede to any reasonable rate which sellers may name, but, for reasons stated, very little new business is being taken. The following quotations may be considered a fair indication of the market to-day: Common Plate and Tank Iron, 3.3¢ @ 3.5¢; C. H. No. 1, 3.7¢; Flange Iron, 4.7¢ @ 4.9¢; Best Bloom, 6.2¢ @ 6.5¢.

Sheet Iron.—The demand shows further increase, and many large orders have been refused, while smaller ones have been reduced so that all could get such share as manufacturers were able to give them. Prices are made from day to day, and appear to rest entirely with sellers. The question is not so much one of price as it is in getting an order taken at whatever rate may be current at time of delivery. We quote as an average price to-day, viz: Common Sheet, No. 20 to 23, 3.8¢ @ 3.9¢; No. 24 to 28, 4.0¢ @ 4.1¢; Best Refined Sheet, No. 25 to 28, 4.3¢ @ 4.4¢; No. 16 to 24, 4.0¢ @ 4.1¢; No. 25 to 28, 6.4¢ @ 6.5¢; Refined Plates or Blue Annealed, 5-16 to 16, 3.4¢ @ 3.6¢; Best Bloom, 5-16 to 16, 6¢ @ 6.2¢; A Patent Planished, 10½¢; B Patent Planished, 9½¢; Best Blooms, Galvanized, 20 % discount; second quality, 30 %.

Bar Iron.—There is no change in nominal quotations, but orders are more difficult to place, and there is little doubt that higher prices would be paid if manufacturers would enter into new contracts. The demand is said to be beyond anything ever known, and at present is far in excess of the capacity of the mills to supply. Manufacturers are probably not making nearly so much money as some suppose, as their product is, to a great extent, required to complete contracts made when prices were several dollars per ton lower than they are now. They are also rapidly consuming their stocks of Pig Metal, so that with the advances granted to labor and the higher cost of material, there is not much margin for profit, even at the full prices of to-day. The difficulty of placing orders has turned the attention of merchants toward the English market, and it is said some considerable shipments will be made in course of two or three weeks. It is to be regretted that this course has been thought necessary, but of course if Iron cannot be had here it will be sought for elsewhere, as the Iron trade is not the only branch in which there is extraordinary activity. We have heard of several instances of serious interruptions for want of Bar Iron to work with, and in such cases parties will not object to using foreign material until they can be otherwise accommodated. It may, however, have the effect of preventing too rapid an increase in the cost of production, which is already quite as high as is warranted, even under the present exceptionally favorable circumstances. A very slight falling off in the demand might lead to a reduction in the price of Iron, but labor, &c., would be very unwilling to contribute their share, so that it may do no harm to find competition at hand, and thus prevent anything like inflation in values. We quote 2.8¢ @ 3¢ for Refined Iron, but no large orders are accepted, even at the outside figure. Small lots are sold as above quoted.

Steel Rails.—Some very large transactions are pending, one company being in the market for 50,000 tons, all of which will probably be closed this week. There are other orders amounting to at least 100,000 tons which will also be closed at something near the figure agreed upon for the first-named parcel. The advance in cost of production will probably compel manufacturers to obtain upward of $50, but there is a disposition to keep prices as low as may be consistent with safety. We quote $50 @ $52, at mill, in ordinary transactions. Market steady and firm.

Iron Rails.—The rapid advance in material has compelled manufacturers to advance their rates to about $45 at mill, which figure buyers are unwilling to meet, so that scarcely any business has been closed for some days past. The condition of the market is, therefore, very unfavorable for manufacturers, and, although there are plenty of buyers, it seems quite likely that the mills will not have much work during the winter. Foreign Rails are offered at $41 @ $43 at tide, so that the domestic article is at a decided disadvantage, and, unless price of material declines, there is rather a poor prospect for the winter. Meantime, we quote $44 @ $45, at mill, as the nominal figure for American, and $41 @ $43, at tidewater, for foreign.

Old Rails.—We have again to quote an active market, at steadily improving prices, with sales during the week in lots to the extent of about 8000 tons at $28, $28.15, $28.75, $29 and $30 now asked. We hear of $29 having been refused for a lot yesterday, and from present appearances $30 will have to be quoted next week, although it is difficult to see how they can be used at that figure with any margin for profit. We quote the market unsettled at $29 as an average figure.

Scrap Iron.—Market firm and unchanged. Stocks very light. We quote: Cast, $15 @ $16; Wrought, $25 @ $27.

Nails.—The market is quiet, but prices are firmly maintained, with $3.25 as a minimum figure.

PITTSBURGH.

Office of *The Iron Age*, 77 Fourth Avenue,
PITTSBURGH, PA., September 23, 1879.

Other branches of business appear to be sympathizing with the "boom" in Iron, as a number of the leading articles have advanced sharply. Reports from all points in the West are of an encouraging character, and as soon as the yellow fever disappears from Memphis, business with the Mississippi Valley will soon revive. Our manufacturers are nearly all in excellent spirits. All the railroads centering here are pressed with business, and experience much difficulty in getting sufficient rolling stock.

Pig Iron.—There is a fair degree of activity, and while the market is possibly not so much excited, there are still more buyers than sellers, and any desirable lots put on sale soon meet with buyers at very full prices. The mills generally have fair stocks; some of them, it is said, have enough to last them three or four months, but others are less fortunate. Refusing to follow the rapid advance, they purchased sparingly, not caring to anticipate future wants, and these are now obliged to pay the advance. Indeed, so feverish has the market been for some time past that it was almost impossible to make a purchase at the ruling rate, and buyers, in order to make sure, had to be from 50¢ to $1 per ton above the market price. This accounts to a considerable extent for the rapidity of the advance. The offerings continue light, and the fact is there is but little to offer. Nearly all the furnaces in blast are sold from one to three months ahead, and some of them are refusing to make any additional contracts. The quantity in the hands of speculators is not large, and the apprehension which for a time prevailed in regard to the importation of foreign Iron has subsided considerably, in consequence of the advance in the foreign markets. In regard to the immediate future of the American market, there is a diversity of opinion. Some operators incline to the belief that prices are not likely to advance much more for the present, while others predict a further rise of $3 to $5 per ton. The strong point brought to bear in support of the latter position is that the consumption is in excess of the production, and the visible supply is reduced below what it has been for a number of years. Another is that some of the idle furnaces cannot be started up before next spring for want of ore. The sales reported the past week aggregated some 6000 to 7000 tons, and some of them showed a still further advance of 50¢ to $1 per ton. Bituminous Coal-Smelted Irons, from Lake Superior ore, may be quoted at $28 @ $30, 4 mos., for Foundry; $26 @ $28 for Neutral Mill, and $29 @ $30 for Red Short. Rumors prevail of sales of the latter as high as $32, but thus far are not well authenticated. Coke Irons from native ores, $26 @ $28, 4 mos., for Foundry, and $26 @ $27 for Mill. We note a sale of 200 tons Allegheny River Coke, neutral inclined to Cold Short, at $30, 4 mos.; Anthracite—Sale of 500 tons Neutral at $28, cash: Foundry, $28 @ $30. Bessemer Iron may be quoted at $32 @ $33 for No. 1. A furnace a short distance west of here, but owned in Pittsburgh, made sale, to go to Cincinnati, at $32.50, delivered on cars at furnace.

Manufactured Iron.—The market continues very firm, in sympathy with that for Pig, with a good many orders offering that cannot be accepted, as the mills are all oversold. Some of them have orders booked sufficient to absorb the bulk of their production during the remainder of the year. While there has been no change in the card, we hear of sales above card rates, and should not be surprised if another advance of one or two-tenths should be announced within the next week or two. We continue to quote Bars at 2.50¢; Sheet, 4¢ for No. 24; Hoop, 3.50¢; and Tank, 3.30¢; all less 2 % for cash.

Nails.—The market continues very firm, with an increasing demand, and while there has been no change in prices during the past week, a further advance soon is not improbable. We should not be surprised if it was made before the close of the present week, as, considering the cost of production, Nails are still too low. As the matter now stands, manufacturers are selling in small lots to regular customers at card rates, but it is doubtful whether an order for a round lot could be placed except at an advance of 12½¢ to 25¢ per keg. Our Pittsburgh manufacturers were fortunate in having but few orders booked when the upward turn in prices first began, hence they have kept themselves so as to be able to take advantage of the advance, and are not obliged to give it all away to the jobbers. We continue to quote at $3, 60 days, 2 per cent. off for cash, although, as already stated, no large lots could be obtained either for present or future delivery at our quotation.

Railway Spikes—Continue in active demand and prices are firm at 3¢ per lb., 30 days, for immediate and 3¼¢ for future delivery. The demand has been unusually active all this year, and the advance within the past few months has been almost 1¢ per lb.

Horse and Mule Shoes.—There is a fair business, but no change in prices, which are still quoted at $3.50 @ $4.50, cash, for 100-keg lots.

Wrought Iron Pipe.—There appears to be no falling off in the demand for Gas and Steam Pipe, and discounts have been reduced to 25 % for lots of 1000 feet and upward, and 40 % in a jobbing way: Boiler Tubes, 40 %. Oil Well Casing and Tubing continue quiet and unchanged, although firmer, in sympathy with the increased cost of production. Tubing, 18¢, net; Casing, 75 @ 80 net.

Rails.—There have been no recent sales

here of Steel Rails, and the mills, in view of the increasing cost of Bessemer Iron, are declining to give quotations. It is very certain, however, that the next sales will be at much higher figures than the most recent ones, in view of the very decided advance in the price of Bessemer Iron. Old Iron Rails continue scarce, and while the last sale reported was at $31, it is doubtful whether any more could be obtained at that price. Nearly all the large Old Rail consumers in the West have been obliged to start up their puddling furnaces again, and the supply for some two months past has been very much short of the demand.

Steel.—The Steel mills are all busy with orders sufficient to absorb their production, and prices are firm, but unchanged. The largely increased consumption of Iron does not appear to have decreased that of Steel, but there has been no improvement in the prices of the latter as yet. Tool Steel, 11¢ @ 12½¢; Machinery, do., 5¢ @ 7¢; Boiler Plate, 6¢ @ 7¢. There is to be a meeting of the Steel manufacturers in Philadelphia October 4th, at which something definite will be done in regard to prices. An advance has been looked for for some time past.

Scrap.—The market for all kinds of Scrap Iron continues firm, with light stocks and an increasing demand, and prices continue to tend upward. Dealers allege that prices are low here as compared with other points, and that Scrap of all kinds is lower relatively than Pig Iron. Old Car Wheels quotable at $28 @ $29 per gross; Car Metal, $19 @ $20; Cast Borings, $14; Old Car Axles, $32 @ $33, net; Old Car Springs, $31 @ $32; Boiler Iron, $26 @ $27; No. 1 Wrought Scrap, $29 @ $30. The arrivals continue light, and stocks in yard are pretty well depleted. Dealers are putting out more than they are getting in.

Window Glass.—While there is a very fair degree of activity, the market in some respects is not in as satisfactory a condition as it might be. There is a feeling of unrest on the part of employees, who are clamorous for increased pay, and "strikes" are of no uncommon occurrence. Manufacturers cannot put up prices and compete with French glass, and they cannot meet the demands of their workmen unless they do. It is strange that the latter do not realize the situation and stop asking for wages their employers are unable to pay. There is no complaint to make so far as the volume of business is concerned, as the demand all this year has been more active than during any year since 1872, but prices have not been satisfactory. We continue to quote at 70 & 10 for single and 70, 10 & 10 for double strength, in car-load lots, and 70 & 10 and 70 & 5 per cent. in a jobbing way.

Coke.—The market continues much the same as noted in our last report. There is no apparent falling off in the demand, nor is it likely that there will be in view of so many idle blast furnaces being started up, and the fact that the demand for general use is always large in the fall and winter. The capacity has been largely increased during the present year, as a great many new ovens have been completed and more are now in process of construction, but the consumption continues to keep pace with the production, and while it is larger now than ever before, it is still increasing and there appears to be no apprehension of it falling off for some time to come. Shipments are being made in all directions, and furnaces that formerly used coal are now using Coke entirely, as the cost is about the same. We continue to quote at $1.20 @ $1.30 ℔ ton, delivered free on cars at ovens.

Coal.—There is an increasing demand, which, owing to the starting up of so many mills, foundries, furnaces and manufactories in general, not only here, but elsewhere, is unusually heavy, and is likely to continue so all winter. The outlook, so far as the Coal trade of Pittsburgh is concerned, is more encouraging than it has been for some years, as stocks at nearly all points drawing their supplies from this point are very much reduced. At Cincinnati there is no Pittsburgh Coal in first hands, the last two barges having been sold there a few days since at 10¢ per bushel. At Louisville and other down river points supplies are light, with there, as here, an increasing demand, and as soon as there is sufficient water large shipments will be made by river. Prices here are firm, with an upward tendency, and an advance is not improbable.

Petroleum.—The market for Crude has been more active and decidedly firmer the past week, and an advance of 5¢ @ 6¢ ℔ bbl. has been established. While no very great improvement can reasonably be expected, in view of the continued heavy production and visible supply, we should not be surprised if there was an occasional "spurt" between now and the close of the year, as Petroleum is very low and there is plenty of idle money—money seeking an investment. The feeling prevails that Crude is good property at current rates to those who have tankage and can carry it for six months or a year, as it is believed that the present unremunerative prices will, sooner or later, check development and reduce production. Many of the wells are not now paying expenses, and some of these, if there is not a change for the better, will soon have to be abandoned; and, as will be noticed, there is no inducement to put down new wells. This being the case, the probability is that oil will be worth a good deal more in 1880, as it cannot be produced to pay anything on current prices.

CHATTANOOGA.

Office of *The Iron Age*, Market and 8th Sts., CHATTANOOGA, Sept. 22, 1879.

Business holds its own at least. The opening of fall goods last week has been followed by warm weather, and, consequently, rather slow sales. The advance in Iron has very much stimulated the movements toward blowing in old and building new furnaces. One new stack has been lately blown in at Anniston, Ala. It has a capacity of something more than 20 tons daily, and will produce Car-Wheel Metal exclusively. With all the additional product, the market seems to be barer each week, and dealers wonder what has become of all the Iron that was lying about the district a few months ago. Manufactured Iron has now reached an equal rate of advance in proportion with crude metal, and the mills are now realizing their full share of the gain. The weather for the week has been warm and dry.

Pig Iron.—The market is bare of all grades, and the demand entirely on consumers' account. We make no change in figures. There can be no doubt now that a large and legitimate demand has increased the price of metals, and the oldest dealers see no reason to conjecture that this will be a mere "spurt." There is every indication that the advance, while it will necessarily be characterized by some irregularity, will be as permanent as any the trade has experienced heretofore. Coke Irons—No. 1 Foundry, $20 @ $23; No. 2, $17 @ $20; Gray Forge, $17 @ $19; White and Mottled, $15 @ $16. Hot-Blast Charcoal—No. 1 Foundry, extra, $22 @ $24; ditto, $20 @ $22; No. 2 Foundry, $17 @ $20; Gray Forge, $17 @ $20; White and Mottled, $16. Cold Blast Charcoal—Car Wheel Metal, $22.50 @ $27.50; do., Extra Standard, $24 @ $29; Forge, $17 @ $22.

Muck Bar, &c.—$30 @ $35.50; Old Rails, $22 @ $24; Wrought Scrap, $18 @ $20; Old Car Wheels, $19 @ $20. Old Rails and Wrought Scrap are very stiff at quotations, with advancing tendencies.

Ores.—Brown Hematite, 50 to 56 %; per ton, $1.75 @ $2.25. Red Fossiliferous, 50 @ 56 %; per ton, $1.20 @ $1.60. The above prices for ores delivered in Chattanooga on cars or on the wharf from flat boats.

Nails.—The advance in Nails has been more marked than in any other article since the middle of August. We quote at $3 rates, no reduction on job lots. This quotation is simply indicative. The mills would not book orders on it two days ahead.

Manufactured Iron.—The advance has been more quiet during the last week, but steady and considerable. We quote: Bars, $3; Railroad Spikes, $3.25; Light Rail, $3.50; Track Bolts, $3.75; Trestle Bolts, $4.50.

Coke.—We quote 10¢ per bushel for Washed Foundry. Furnace at $2.25 per ton on cars in Chattanooga.

Coal.—The fall business in this important article has fairly started. Best household Coals, strictly lump, run from 12½¢ @ 14¢, delivered. Run of mine to manufacturers, $1.25 @ $1.75 per ton.

Pig Lead—5¢; Ingot Copper, 19¢.

Iron Rails.—The mills here and at Atlanta are not booking orders, being behind and running full to catch up. We quote 35 lb. Rails at $45 @ $47, and larger sizes at $42 @ $44 per ton.

Steel Rails.—We quote at $47 at mill, and no supply for transient buyers.

BOSTON.

SEPTEMBER 20.—The Iron market continues active and excited, and there is no present abatement of the upward tendency in prices. American Pig has undergone another advance of $2 or $3 per ton since our last. No. 1 X Foundry Iron continues scarce, and $28 has been named as the shipping port price to a buyer at this point this week. But more quotable figures are probably $26 @ $27 for No. 1 X; $25 @ $26 for No. 2 X; $24 for Gray Forge; White and Mottled, if to be had, $23 @ $24. Freights to Boston are $1.40. There is little, if any, Pig Iron on the spot, and quotations are $28 @ $29 for No. 1 X, and $27 @ $28 for No. 2 X. *Scotch Pig.*—The receipts of the week have been about 600 tons. We quote: $23 @ $24 for Eglinton; $24 @ $25 for Gartsherrie, and $26 @ $27 for Coltness; either spot or to arrive. *Manufactured Iron.*—Bar Iron has advanced to 2¾¢ from mill or in large lots from store, and to 3¢ ℔ lb. in a retail way. All the mills are full of orders, and the demand from store is active at the prices named. Plate and Tank are firm at 3¼¢ for Common Tank; 3½¢ for C. No. 1; 4¢ for C. H. No. 1 Shell; 4⅝¢ for Flange; 5¢ for X Flange, and 5½¢ for Fire-Box; these prices from mill, on orders for delivery 6 or 8 weeks hence. There continues to be an active demand from the stores at 3⅞¢ for Tank; 4¢ for C. No. 1, and 5¢ for Flange. Sheet Iron meets with a continued active inquiry from the Boston stores, and we quote 3¼¢ @ 4¼¢ for Nos. 12 to 18, 4¢ @ 4½¢ for Nos. 20 to 24; 4¼¢ @ 5¢ for Nos. 25 to $26, and 5¢ @ 6¢ for Refined. The demand for Galvanized and Russia Iron is active and improving, but prices are unchanged, quoting Galvanized at 7½¢ @ 8¢ for Nos. 14 @ 20, and 8¼¢ @ 11¼¢ for Nos. 21 to 28; Russia perfect at 13¢, and No. 1 stained 12½¢. *Steel* is in good demand from Boston stores, and prices show a rising tendency, in sympathy with the other articles under this head. The Steel manufacturers hold another meeting next Wednesday, when it is expected that prices will be advanced. We quote: American Tool Steel at 11½¢ @ 13¢; English do. at 14¢ @ 15¢; American Spring Steel at 5¢ @ 6½¢; English do. at 7¢ @ 8¢; Tire Steel at 4¢ @ 4½¢; Bessemer machinery at 4½¢ @ 5½¢, and Crucible do. at 6¢ @ 7¢. *Copper.*—Ingot has further advanced. There have been sales of Lake at 17¢, and the market is somewhat excited, and very little of the metal is to be had for immediate delivery. The only change in manufactures has been an advance of 1¢ ℔ lb. in American Yellow Metal Sheathing, which is now quoted at 14¢ @ 15¢; English do. 12¢ in bond. We quote: Copper Sheathing, 22¢; Braziers, 24¢; Bolts, 24¢; Bottoms, 26¢; Yellow Metal Bolts, 20¢. *Antimony* has further advanced, and we now quote 13⅛¢ @ 13¼¢ for large lots, and 13⅜¢ @ 13¾¢ for smaller parcels. *Lead* is dull and weak, and 4¢ is now about the outside figure for large lots of pig. Smaller lots from store are quoted at 4½¢. Manufactures are unchanged, and we quote: Lead Pipe, 5½¢; Tin-Lined Pipe, 12¢; Bar Lead, 6¢; Sheet Lead, 6¢; Block Tin Pipe, 30¢. All of these are subject to the usual trade or 10 per cent. discount. *Spelter* is quiet and steady at 6¢ for car-load lots, and 6¼¢ @ 7¢ for smaller lots from store. *Sheet Zinc* is in good demand at 8¢ @ 9¢ ℔ lb. *Tin* is firm at 17¼¢ @ 17½¢ for large lots of Straits. Smaller lots as below: We quote: Straits, 17½¢ @ 18¢; Banca, 20¢ @ 21¢; English L. & F., 16½¢ @ 17½¢. Tin Plates are in fair demand and prices are firmly sustained, quoting Charcoal I. C. at $6.50 @ $7; Coke at $5.20 @ $6, and Charcoal Terne at $6.25 @ $8.—*Commercial Bulletin.*

CINCINNATI.

Messrs. E. L. HARPER & Co., under date of Sept. 22, write as follows: The market during the week past has been characterized by limited offerings of all grades. The present stocks are exceedingly light, and the aggregate amount the furnaces can spare for some months to come, after providing for orders booked, is not large, and the indications are it will be barely sufficient to meet the demands for consumption. The only grade the market is not almost completely bare of to-day is Hanging Rock Charcoal. The quantity of this grade on hand is smaller than for many years, and is concentrated in the hands of a few furnaces, who are not willing to sell but to a very limited extent at present rates. Under these conditions the market continues strong and bouyant, and if the demand is maintained (of which there appears to be no question whatever), a further sharp advance seems very probable. Among other large sales reported during the week, is one by the Graffton Iron Co., of Leetonia, Ohio, of 1000 tons close Gray Coke Iron, made from Bessemer Ores, at $35 cash, on cars at furnace, the same buyers desiring to secure a lot of White and Mottled, made from the same stock, at $32, same terms. Car Wheel Irons are very strong. The furnaces in all the districts are largely sold ahead, and the consumption is very large. The demand for wheels was probably never so great as now, and it is estimated that there will be built 75,000 more cars this year than last. Prices have advanced from $5 @ $8 per ton within the week, with every prospect of a further large advance soon because of the large demand for daily consumption and light supply available for early delivery. Present quotations for these goods are necessarily largely nominal:

HOT-BLAST FOUNDRY.	
Hanging Rock C. C., No. 1	$30.00 @ 32.00
" C. C., No. 2	29.00 @ 30.00
Virginia Coke, No. 1	29.00 @ 30.00
" No. 2	27.50 @ 28.50
Alice Coke, No. 1	29.00 @ 30.00
" No. 2	27.50 @ 28.50
Fannie, American Scotch	28.00 @ 29.00
Hocking Valley S. C.	28.00 @ 29.00
" " No. 2	27.00 @ 28.00
Southern Coke No. 1	28.00 @ 30.00
Ohio Stone Coal, No. 1	26.00 @ 27.00
" " No. 2	25.00 @ 26.00
Open Silver Gray	26.50 @ 28.00
FORGE IRONS.	
Hanging Rock, No. 1 C. C.	28.00 @ 29.00
" Coke	27.00 @ 28.00
Longdale, No. 1 Coke	None offering.
S. P., No. 1 Coke	"
Ala. and Tenn., C. C.	"
Red Short, No. 1 Coke	"
Cold-Short, No. 1	25.00 @ 26.00
Old Car Wheels, cash	None offering.
Old Rails	"
Pecham's Pat. Refined Steel Blooms	60.00 @ .....
" double hammered	65.00 @ .....
CAR WHEEL AND MALLEABLE.	
Hanging Rock C. B.	36.00 @ 40.00
Southern and Western Brands	35.00 @ 39.00
Lake Superior	33.00 @ 35.00
Salisbury	45.00 @ 47.00

BALTIMORE.

W. N. WYETH, Iron and Steel Merchant, 46 and 48 South Charles street, Baltimore, reports us the following under date of Sept. 22: We have again to note an advancing market, and revise quotations to conform with same. Prices are remarkably firm, and stocks scarce and much broken, and obtainable only with difficulty and delay.

Ref. Bar Iron, 1 to 6 by ⅜ to 1	℔	lb	2 8-10 @ 3 ¢
" " 1 to 4½ by 1⅛ to 2	℔	lb	2 8-10 @ 3 ¢
" " ¾ to 2, Round and Square			2 8-10 @ 3 ¢
Hoop Iron, 1⅛ wide and upward		"	3¼ @ 4 ¢
Band Iron, from 1¼ to 4 in. wide		"	3½ @ 3¾¢
Horse-shoe Iron		"	3½ @ 3¾¢
Norway Nail Rods		"	5 @ 5½¢
Black Diamond Cast Steel		"	12½ @ 13 ¢
Machinery Steel		"	7 @ 8 ¢
Cast Spring Steel		"	6 @ 6½¢
Homogeneous Steel Plate		"	6½ @ 7 ¢
Common Horse Nails		"	10 @ 14 ¢
R. R. Spikes, 5½x9-16			3 ¢ @ 3¼¢
Perkins' Horse shoes, ℔ keg of 100 lbs			$3.62½
" Mule shoes			4.62½

Putnam Horse Nails	℔	lb	18	19	20	21 23¢
Globe Horse Nails	℔	lb	18	19	20	21 23¢

Less list discount to the trade

R. C. HOFFMAN & Co., Iron and Commission Merchants, report the Pig Iron market as follows under date of Sept. 22: We have to note further advance in price of Pig Iron, and quote to-day as follows:

Baltimore Charcoal Wheel Iron	$33.00 @ 35.00
Virginia " "	34.00 @ 36.00
Anthracite No. 1	25.00 @ 26.00
" No. 2	24.00 @ 25.00
" No. 3	23.00 @ 24.00
" Mottled and White	21.00 @ 22.00
Charcoal, C. B. Blooms	55.00 @ 60.00
" " Billets	60.00 @ 65.00
Refined Blooms	50.00 @ 52.00

LOUISVILLE.

Messrs. GEO. H. HULL & Co., under date of Sept. 20, write us as follows: The market is very firm and shows a still further advance. Mill grades are most in demand and everything offered at reasonable figures is taken. As nearly all sales are now made for cash we give cash quotations only:

FOUNDRY IRONS.	
No. 1 Hanging Rock, Charcoal	$29.00 @ 30.00
No. 2 " "	28.00 @ 29.00
No. 1 Southern, Charcoal	28.00 @ 29.00
No. 2 " "	27.00 @ 28.00
No. 1 Hanging Rock, Stonecoal and Coke	28.00 @ 29.00
No. 2 Hanging Rock, Stonecoal and Coke	27.00 @ 28.00
No. 1 Southern, Stonecoal and Coke	27.00 @ 28.00
No. 2 " "	26.00 @ 27.00
"American Scotch"	26.00 @ 27.00
Silver Gray	25.00 @ 26.00
MILL IRONS.	
No. 1 Charcoal, Cold-short and Neut'l	27.00 @ 28.00
No. 1 Stonecoal and Coke, Cold-short and Neutral	25.00 @ 27.00
No. 2 Stonecoal and Coke, Cold-short and Neutral	24.00 @ 25.00
No. 1 Missouri and Indiana Red-short	28.00 @ 29.00
White and Mottled, Cold-short and Neutral	21.00 @ 22.00
CAR WHEEL AND MALLEABLE IRONS.	
Hanging Rock, Cold-blast	32.00 @ 35.00
Alabama and Georgia, Cold-blast	30.00 @ 32.00
Kentucky, Cold-blast	30.00 @ 35.00

W. E. BELKNAP & Co., Iron and Hardware Merchants, Nos. 113 and 115 West Main street, under date of September 22, write as follows: We have still to report an advancing market. Notice reached us this morning from Cincinnati that Bar Iron there was being held at $3.20; also, private intimation from well-informed Pittsburgh manufacturers that Pig is in a fair way to reach $35. The advances have been rapid, and so far in excess of everyone's expectations that speculations about the future must be more vague than they were in the beginning. While some buyers, apprehensive of a speedy reaction, are withholding their orders, the general impression is that they will suffer by the delay, as the strong demand for all descriptions of Iron seems unabated. To enumerate the articles affected by the rise would be simply to catalogue every article made of Iron, wire and screws being among the latest. The market is entirely bare of Scrap, and one of our mills has had to go to England for 1000 tons to supply its wants. Nails continue to bring up the rear, and to-day are selling at exactly the same, if not a little less, than Bar Iron, an anomalous state of affairs which is not likely to exist long. Burden & Sons have again advanced the price of Rivets, and it is expected that Horse Shoes will follow. General business throughout the city and country adjacent is exceptionally good, groceries and provisions and almost all lines joining to further the general revival and contributing to the era of exceptional activity. Our manufacturers who pulled through the hard times are now reaping the benefit of patience and endurance, and large orders have been taken here at the recent advances for Iron, Chains, Axles, Axes, Wagons, Machinery, &c. A sound currency, based upon gold values, and confidence in the future despite the impending session of Congress, are doing their good work for the country at large; but we want no tinkering with special taxes and tariffs, which is sure to precipitate a condition of doubt and apprehension most disastrous to all interested in manufacture and commerce, and to none more than the laboring classes.

RICHMOND.

Mr. ASA SNYDER, Iron Merchant and Furnace Agent, writes as follows under date of Sept. 22: Sales of the past week sum up 100 tons No. 1 Foundry, 100 tons Mixed Forge, 70 tons Charcoal and 50 tons No. 2 Foundry Pig Irons, and 150 tons Old Rails, and 35 tons Eglinton Scotch. The demand for Bar Iron and Rails continues very active.

Anthracite, No. 1	$27.00 @ 28.00
" No. 2	25.00 @ 27.00
" No. 3	25.00 @ 26.00
" Mottled and White	23.00 @ 24.00
Coke, No. 1	@
" No. 2	@
Va. Cold-blast Charcoal, Neutral	31.00 @ 32.00
Old Rails	26.50 @ 27.50
Old Dominion Nails, per keg	3.25 @
Refined Bar Iron	2 8-10c. @
Wrought Scrap No. 1	21.00 @ 23.00
Cast " (machinery)	19.00 @ 20.00

Freights to New York, $1.85 for 2240 lbs. by sail.

Our English Letter.

Review of the British Iron, Steel, Metal and Hardware Trades.

(From our Regular Correspondent.)

LONDON, ENG., Sept. 28, 1879.

THE WEEK

has not been characterized by any event of unusual magnitude or even interest, with the exception of a failure at Liverpool—that of David Stewart & Co., bankers and merchants—which will probably have some slight effect on your side of the Atlantic. The official *Gazette* notification gives the names of sundry persons in both countries as members of the house, but I learn that the effect of the stoppage will not be quite so serious as had been originally feared. In most respects the results of the six days' business have been fairly satisfactory. In Scotland, Cleveland and certain other parts of the country there has been a fair turn over in iron, several kinds of which have become stiffer in price, and are not unlikely to go higher. Scotch pig is about 1/ per ton dearer, that increment having been declared by the Messrs. Baird for Gartsherrie No. 1, while warrants are running up and down the speculative gamut almost every day. In Cleveland, Wales and Derbyshire all raw irons are dearer, and here and there some persons think they can trace a similar movement in respect of finished descriptions. On the latter head I am unable to express myself with any decision, save as regards galvanized sheets, which have necessarily grown 20/ @ 30/ per ton dearer in consequence of the movement in spelter, which has again gone up in Belgium, where the Vieille Montaigne combination is effectually upholding the market. For best bars and special irons, too, the call is stated to be much better, a certain proportion of the improvement being attributed to the additional requirements of United States' buyers. There are rumors of further sales of iron rails on your behalf, but I fancy the reports are somewhat vague in origin. They certainly afford little or no clue either to the venders or buyers.

THE BAD NEWS

received to-day from Afghanistan has come most inopportunely for the traders of this country, especially those whose enterprise and general efforts lead them to cultivate the larger centers of the Eastern world. It had been hoped (and with some reason) that we had arrived at the conclusion of our several little wars, and that we might fairly look forward to a long period of "peace with honor," not to mention retrenchment at home and security abroad. Coupled with the renewed reports of possible complications on the Continent, the Cabul outbreak must and will of necessity hinder enterprise, and lead to a further halt in the conduct of transactions which might have led to the opening out of a period of no slight activity. The Continent of Europe does not appear to respond to our calls in a very satisfactory manner. Germany does not disarm for reasons which are best known to her statesmen; France has nearly a million of men under arms; Austria is undergoing another political transformation; Turkey is the prey of scheming home and foreign adventurers; Italy is suspected of secret plotting with Servia and Bulgaria against Austria; while Russia is known to be in such an anarchical condition that a revolution may at any moment break out. Such a state of affairs is certain to be anything but conducive to the eminently peaceful interests of commerce, and so long as it lasts we cannot be certain that Europe will buy and pay for our manufactures. We must continue to cultivate our colonies, India, China, Japan and Africa, and must look to the home trade to add something to sustain the demand we may obtain thence. Unfortunately, prospects in this country are by no means brilliant, although the finer weather which has prevailed of late has enabled the farmers to gather in a good breadth of corn in a moderately sound condition. The great manufacturing districts, however, do not move much, and until they do so we cannot hope for any appreciable upward change.

SCOTCH PIG IRON

has been steady as regards makers' brands, and warrants have been lively, owing to the operations of speculative buyers. On the whole, nevertheless, the market may be pronounced healthy, and the demand largely composed of quite legitimate elements. There are 90 furnaces blowing in Scotland, as against 92 at this date last year. The shipments to date have increased 68,966 tons, most of the increment having gone to foreign destinations. Messrs. John E. Swan & Bros., Limited, report 300,735 tons in Connal & Co.'s stores, compared with 192,184 tons a year ago. In makers' own yards the total stock is roughly estimated to be 500,000 tons, making an aggregate available stock of over three-quarters of a million tons; besides which it should be borne in mind that there are 64 furnaces idle. Of that number at least half could be utilized at very short notice. Ballast pig iron is still nominally 37/6 per ton alongside in Forth or Clyde. Freights from Glasgow or Greenock to your Eastern ports are quite firm at 10/ @ 12/6 per ton, with only a moderate tonnage of steamers at hand. Writing on September 6, James Watson & Co. said: "The Scotch pig iron market has been very animated this week, with a large business done in warrants and in shipping iron. The opening price on Monday was 44/9, cash, with business done that afternoon as low as 44/ per ton, and on Tuesday it improved to 45/4½, while on Wednesday as high as 46/4½ was paid, declining, however, that afternoon to 45/9. Yesterday it further receded to 45/3 per ton. To-day the price recovered from 45/6 to 46/4, cash, closing with buyers at 46/3 and sellers at 46/4½ per ton. The shipments last week were returned as 18,312 tons (inclusive of two weeks in arrears from Leith), as compared with 8493 tons for corresponding week of 1878." We quote:

	No. 1.	No. 3.
G. M. B., at Glasgow	46/	44/3
Gartsherrie, "	50/	45/6
Coltness, "	54/6	45/6
Summerlee, "	48/6	44/6
Langloan, "	56/6	44/9
Carnbroe, "	49/	44/3
Calder, at Port Dundas	49/	44/3
Glengarnock, at Ardrossan	49/	44/3
Eglinton, "	46/6	44/9
Dalmellington, "	45/	43/6
Shotts, at Leith	48/6	45/9

AMERICAN HORSE SHOES

are reported, by a correspondent of the *Ironmonger*, to have had some success in this country, and to have at length obtained a footing at Wolverhampton, which is one of the great centers of the machine-made horse shoe trade of Great Britain. The American articles, being wholly machine-made, are offered at lower prices than the home-made shoes, and are also claimed to possess several intrinsic merits and advantages. Your shoes are made perfectly flat, and of such a shape that they may be fitted to the animal's hoof without the customary cutting and paring of the frog, &c., while quite cold. The local manufacturers naturally contend that these alleged points of merits are purely adventitious, and that their products are every whit as good. At the same time it is noted that the Wolverhampton Tramways Company have entered into a year's contract for the American shoes (with ready tipped nails), while, on the other hand, it is mentioned that a buyer who had for some time obtained his supplies from "over the way," has returned to his first love, and is again using the English shoes for his horses.

TRADES-MARKS ON CUTLERY

are being discussed by some of the journals here. A Mr. Brown, well known as a London manufacturer of tailors' shears and scissors, asserts that some of the Sheffield people, for the sake of a little extra profit, are buying common German scissors, and sending them out stamped with their own names and marks, notwithstanding the fact that the quality of the goods is most inferior. Besides these, the German houses are said to be asking in this country for quotations for goods of this class, to be marked with the brands of other well-known makers. Mr. Brown vehemently condemns these unwholesome practices, and in doing so renders a passing tribute to the probity of French and American manufacturers of such articles, both being proud of their own productions, and most scrupulous not to endeavor to make capital out of the prosperity of another person.

THE BOARD OF TRADE RETURNS

for August, issued to-day, are in many respects much more encouraging and hopeful than most of the similar statistics of late. As regards iron and steel, the month compares remarkably well with August, 1878, the totals being 258,223 tons and 213,216 tons respectively, and the values of £1,699,449 against £1,585,033. Under not a few of the heads under which the statistics are ranged considerable increasements in the business done with the United States are shown, thus demonstrating that we have already felt some of the influences of your trade revival.

THE EUROPEAN AND UNITED STATES TARIFFS

are being made by the Wolverhampton Chamber of Commerce, under whose auspices the duties levied in different countries have been worked out at present values, so as to show the precise percentages on various articles. The longest space is occupied by the United States, which are shown to levy the highest duties in the whole list. Next to your country, Portugal seems to work out the stiffest percentages. The German tariff is a relatively mild effort at protection, looked at from this standpoint. Bound up in the same pamphlet are tabular statistics, showing the exports to and imports from most of the leading countries of the world

The demand for Scroll Saws has become so large that most Hardware dealers are getting in the way of keeping them.

The trade commences in early fall and lasts all winter, thus helping business in the dullest season. There is probably not a Hardware store in the land but that could sell some of these goods.

We are headquarters for hand and foot-power Saws, Saw Blades, Wood, Designs and all things pertaining to this business. The Lester Saw at $8 and Rogers Saw at $3 are now in universal demand. The Lester Saw consists of a Scroll Saw, Circular Saw, Drilling Attachment, Emery Wheel, Dust Blower, Turning Lathe and Tools, extra Saw Blades, Drill Points, Designs, Screw Driver, Wrench, &c. It has been greatly improved since last year, and is a very perfect machine. The Rogers Saw consists of a Scroll Saw, Drilling Attachment, Dust Blower, Designs, Drill Points, Saw Blades, Wrench, &c. The Saws are nicely boxed, without extra charge. We warrant them in all respects. They give dealers no trouble.

MILLERS FALLS CO.,

74 Chambers Street, NEW YORK.

Q. S. BACKUS,

Sole Manufacturer of the

BACKUS Patent **Bit Braces, Angular Borers Ratchet and Straight Extensions,** &c.

Comprising every grade of quality and finish, from the cheapest Farmers' Brace to the finest Steel Sweep, heavily nickel plated, with rose-wood handles and lignum vitæ heads, being the most complete line offered by any manufacturer in the country, and which for simplicity of construction and effectiveness have no equal. Catalogues and price lists furnished upon application at office and salesroom.

No. 102 Chambers Street, NEW YORK.

COVERT'S

Patent Improvement in

ROPE GOODS.

No more Splicing or Winding Ends with Cord.

No. 1. No. 2.

Rope Halters, Horse Ties, Cattle Ties, Halter Leads, &c., made by clamping the lap with steel rings, as shown in cut. Also, clamping the end with a ring to prevent unbraiding.

This is all accomplished by machinery, and a superior article can be made at so much less cost, it will not pay any one to make up goods the old way. We are now prepared to furnish the trade the cheapest and best Rope Halters ever made. No. 1 illustrates the twisted and irregular form of the spliced Halter; also the insecure method of whipping the end with cord, which invariably comes off, and allows the rope to untwist. No. 2 illustrates the New Halter. It is made by clamping the laps with steel rings. The end is also secured with a steel ring, which will remain as long as the rope lasts. We have also a full line of

COVERT'S HORSE AND MULE JEWELRY.

Consisting of Covert's Celebrated Harness Snaps, Swivel Snaps, Open Eye Bit and Chain Snaps, Snap and Thimble for Horse and Cattle Ties, Rope Goods, consisting of Horse Ties, Cattle Ties and Halter Leads, Leather Horse Ties, Breast Chains, Halter Chains, Martingale Chains, Rein Chains, Post Chains, Post Rods, &c. These goods are far superior to anything of the kind on the market. They have from real merit become standard, and never fail to give entire satisfaction. They are sold by all leading jobbers in general and saddlery hardware at manufacturers' prices. Send for illustrated catalogue and price list. Address **COVERT MFG. CO.** Sole Manufacturers, *West Troy, N. Y.*

NATIONAL Horse Nail Co.

MANUFACTURERS OF

FINISHED

[BRIGHT OR BLUED]

These nails are made of the best brands of **NORWAY IRON,** and are guaranteed to be equal to any in the market.

NATIONAL HORSE NAIL CO.,
VERGENNES, VT.

HORACE DURRIE & CO., Agents,
No. 97 Chambers St., New York

A. F. PIKE.

East Haverhill, - New Hampshire,
Manufacturer and Wholesale Dealer in

Scythe, Axe, Knife and Hacker STONES.

Factories at Haverhill and East Haverhill, N. H., and Evansville and Westmore, Vt.

Genuine **OLD RELIABLE, INDIAN POND** (Red Ends), **LETOILE, LAMOILLE, DIAMOND GRIT, UNION, WHITE MOUNTAIN, PREMIUM, GREEN MOUNTAIN, MOWING MACHINE, RAGG.**

Stones gotten up and labeled in any style desired.

PRICE and QUALITY GUARANTEED.

All the above Stones are of good keen grit and *will not glaze.*

The Oldest Shot Tower in America.

FOUNDED JULY 4, 1808.

THOMAS W. SPARKS,

Manufacturer of

SPARKS' American Chilled Shot,

Rivaling the English and all Others.

STANDARD DROP & BUCK SHOT AND BAR LEAD.

121 Walnut Street, Philadelphia.

METALLIC SHINGLES.

We call the attention of all parties interested in Roofing, and the owners of large buildings, to the above article. It is superior to slate, cheaper, fire proof, about one-fourth the weight, lays much closer, therefore is storm proof, cannot crack, &c. Any carpenter can put them on. Send for description and Price List to **Iron Clad Manufacturing Co.,** 50 Greenpoint Av., Brooklyn, E. D. P. O. Box, 2528, N. Y. City.

Grant Fan Mill & Cradle Co.

Manufacturers of

Grant's Grain, Coffee, Rice, Cochineal and Pimento Fans,

and

TURKEY WING GRAIN CRADLES, 4, 5 and 6 fingers.
GRAPE VINE GRAIN CRADLES, 4 fingers.
SOUTHERN PATTERN GRAIN CRADLES, 4, 5 and 6 fingers.

All of a superior quality. None genuine unless marked *Grant Fan Mill and Cradle Co.* Send for illustrated catalogue and price list.

P. O. Address,
MELROSE, Rensselaer Co., N. Y.

RIEHLE BROS.

STANDARD

SCALES AND TESTING MACHINES

Patent "Self-Adjusting" Railroad Track Scales, pronounced "the most accurate and durable" over all competitors at World's Fair, 1876. In use by Pennsylvania, Lehigh Valley, Baltimore and Ohio, and other Railroads. Patent Coal and Hay Scales. Warehouse and Platform Scales and Scales for all purposes. Machines for testing materials, all sizes.

Works, **9th st.,** at Master; Store, 52 S. 4th st., Phila. New York Office, 91 Liberty Street.

BOILERS, ENGINES AND TANKS FOR SALE at LESLIE BOILER WORKS, Pearl, near Greene st., Jersey City. Repairs promptly attended.

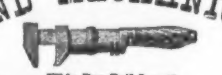
Established in 1839. Formerly L. & A. G. Coes.

L. COES & CO.

Manufacturers of L. Coes'

GENUINE IMPROVED  AND MECHANICS

Wide Bar Full Length.



Wide Bar Full Length.

Patent Screw Wrenches

UNDER PATENTS DATED

JUNE 26, 1866,
MARCH 23, 1869,
REISSUED 1870.

NOVEMBER 10, 1863,
FEBRUARY 23, 1864,
REISSUED JUNE 1, 1869,
IMPROVED AUG. 1, 1877.

The back thrust when in use borne by the SHANK instead of the Handle.

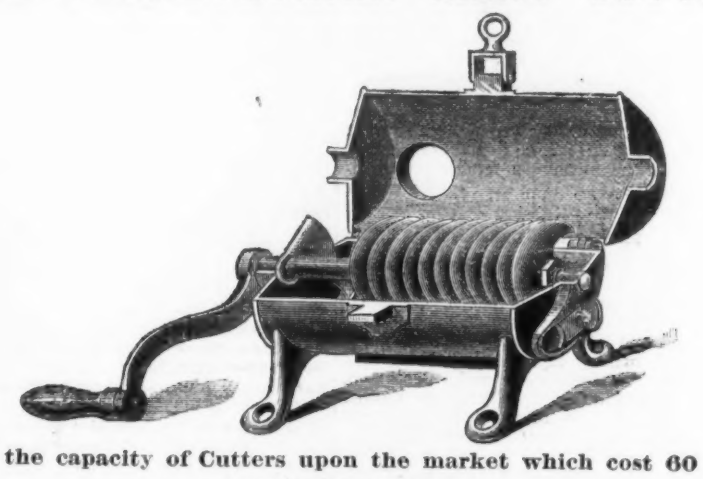
None genuine unless stamped "L. COES & CO."

WORCESTER, MASS.

Warehouse, 97 Chambers St., & 81 Reade St., N.

HORACE DURRIE & CO., Sole Agents.

THE PENNSYLVANIA MEAT CUTTER



Has the capacity of Cutters upon the market which cost 60 per cent. more money.

PRICE LIST.

No. 1, containing 8 Steel Knives	per dozen,	$24.00
No. 2, " 11 "	"	28.00
No. 3, " 12 "	"	36.00

Nos. 1 and 2 are packed ½ dozen in a box; No. 3 packed ¼ dozen in box.
Discount to the trade 50 and 10 per cent. Orders solicited.

LLOYD, SUPPLEE & WALTON, Philadelphia.
HORACE DURRIE & CO., New York City.

BRASS AND REAL BRONZE CASTINGS

Also, White Metal Castings for Patterns.

PAYSON & CO.,

1319 to 1325 W. Jackson St., and 166 Randolph St., CHICAGO.

THE SWIFT MILL.

ESTABLISHED 1845.

The annexed cut shows one of the many styles of Coffee Mills of our manufacture, especially adapted to Grocers' use and all retailers of coffee. They are highly ornamental, and workmanship of the very best. We make more than 30 styles.

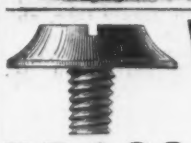
ALSO LANE'S PORTABLE COFFEE ROASTER

Will roast 30 to 40 lbs. at once, and can be used as a stove at other times. Send for descriptive list to Manufacturers.

LANE BROS., Millbrook, N. Y.

Also sold by leading wholesale houses.

Our agents, Graham & Haines, 113 Chambers St., New York, carry a full line of our goods, and will be pleased to serve you at factory prices.



WATERBURY MFG. CO.,

WATERBURY, CONN.,

MANUFACTURERS OF

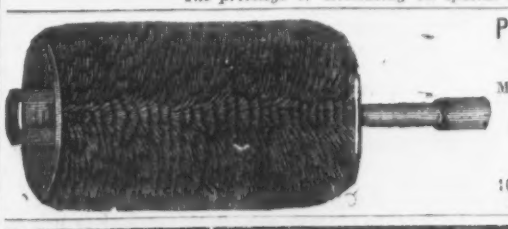
BRASS MACHINE SCREWS

Of every description, at lowest cash prices. Also,

All Styles Nuts, Washers, Ferrules and Brass Goods Generally.

PLUMBERS' AND GAS FITTERS' SUPPLIES A SPECIALTY.

The privilege of estimating on special articles solicited.



PATENT STEEL TUBE AND FLUE BRUSH.

Manufactured and for sale in the

L. B. Flanders Machine Works,

1025 Hamilton St., - - - PHILADELPHIA.

Descriptive circular on application.

THORNE, DeHAVEN & CO., Drilling Machines,

21st Street, above Market, Philadelphia.

PORTABLE DRILLS. Driven by power in any direction.
RADIAL DRILLS. Self-feed--Large Adjustable Box Table.
VERTICAL DRILLS. Self-feeding
MULTIPLE DRILLS. 2 to 20 Spindles.
HORIZONTAL BORING AND DRILLING MACHINES.
HAND DRILLS. CAR BOX DRILLS.
SPECIAL DRILLS. For Special Work.

These are again subdivided into sections, showing respectively the business done in various kinds of iron, steel, tin plates, hardware and cutlery.

THE TIN-PLATE TRADE

dispute is as yet unsettled, and both sides are apparently quite obdurate. The masters have decided to close all the works (with one exception) unless the men accept the lower wages, and have already partially carried out the threat. There is an impression in some quarters that the manufacturers desire a suspension of production for three or four weeks, so as to force up prices, but I confess I fail to perceive the wisdom of that course of procedure. There are dangers other than those which are visible. The tin plate manufacturers know it, and if they are tacticians will make easy terms with their customers.

IN STAFFORDSHIRE

iron is rather more cheerful, and producers are beginning to look forward to higher figures. At present some current prices are, marked iron of ordinary quality: Bars, £7. 10/ @ £8. 2/6; sheets, £9 @ £9. 10/; hoops, £8. 2/6 @ £9. 2/6; plates, £8. 12/6 @ £9. 10/; angle iron, £8. 5/ @ £8. 10/; horse-shoe iron, £7. 10/ @ £8; nail rods, £7. 10/ @ £9; rivet iron, £8. 10/ @ £9. Common iron: Bars, £5. 5/ @ £6. 5/; sheets, £6. 10/ @ £8; hoops, £5. 12/6 @ £7. 5/; plates, £7 @ £8. 10/; angles, £5. 15/ @ £6. 10/; channel iron, £7. 5/ @ £8. 5/; fender plates, £8 @ £8. 10/; gas strip, £5. 12/6 @ £6; horse-shoe iron, £6. @ £7. 15/; nail rods, £5 @ £5. 17/6; rivet iron, £8. 5/ @ £8. 10/; T-iron, £6. 15 @ £7. Galvanized iron fully keeps up the advance of £1 per ton; corrugated sheets are quoted: No. 20 W. G., £12 @ £13. 10; 24 W. G., £14 @ £15. 10/; 26 W. G., £16 @ £18. Hardwares have a tendency to firmness, which has not been the case for two or three years past.

FROM OTHER DISTRICTS

the current trade news is meager, but it may be "taken as read" that there is a little more doing, and a better feeling prevalent. At Sheffield the heavy industries are fairly engaged and the cutlery, &c., manufactories are making more time. I hear that Rodgers, Wostenholms, and Brooks & Crookes are doing very well on United States orders. At Birmingham the hardware trades are moderately well off for indents, but the decided inferiority and backwardness of the harvest renders merchants and factors excessively cautious lest they should overload themselves. In South Wales and Monmouthshire the mills are doing more, even the Crawshay's being reported to be on the eve of restarting. *Nous verrons.*

FOREIGN.

FRANCE.

(Moniteur des Interets Materiels.)

PARIS, Sept. 7, 1879.—*Metals.*—Business, on the whole, is inactive, if we except some speculation in raw material and the resumption of building on an extensive scale in this city. *Copper* has been quiet, with a partial decline of 50¢. We quote per 100 kilos, Chili Bars, 143 @ 145; Ingots and Slabs, 151; Best Selected, 152.50; and Corocoro, 150. Havre is unaltered. They quote Chili Bars, 143.75 @ 147.50. There is no change at Marseilles. They quote Small Refined Ingots, 155; Sheet Copper and Yellow Metal Sheathing, 170; ditto Copper, 175, and ditto Bolts, 180. *Tin.*—The firmness continues, and a fresh advance has been established of 2 @ 4.50 francs. We quote Banca, 187.50; Billiton, 185; Straits and Australian, 186.50, and English Common, 186. All sorts of Tin have improved at Marseilles, except Banca. They quote Banca, 185; Straits, 180; and English and French, 185. *Lead.*—This metal is in a favorable position, and has risen at Paris 1.50 francs. We quote the various sorts 37 @ 38, and Manufactured, 49. At Havre, First Fusion Soft Spanish commands 36.50 @ 37. At Marseilles, the upward movement continues; the works have got no stock left. An advance is reported of 50¢ to 1 franc in Pig Lead, and 1.50 @ 2 francs in Manufactures. They quote the former 35 @ 36.50; ditto Antimonious, 33; Shot, 30; and Sheet and Pipe, 40 francs. *Spelter.*—A stiff market can be reported from there, and a rise of 2 francs. We quote Silesian, 47.50 @ 48.50; and Sheet Zinc, 65. Havre is steady at 47 @ 48. At Marseilles, the price of Vieille Montagne Sheet Zinc has been raised 6 francs, and of other sorts 4 francs. The former is now worth 63 and the latter 60 francs. Old Remelted sells at 27 francs. *Iron.*—Our market is devoid of excitement, but the activity in building keeps up a fair amount of business. Iron for floors is worth 175 @ 190. At the North prices remain firm at 170 @ 180 francs for Merchant Iron delivered at La Chapelle. In the Meurthe and Moselle "affinage" Pig Iron is worth 53 @ 54 francs. In the Haute-Marne there is greater quietness and prices are weaker. In the Loire and Rhone basins Sheet Iron is wanted, but at former prices. During the week there has been such a scarcity of Iron for flooring in this city that several buildings have stopped work. The few dealers who had any Iron flooring on hand have had it all their own way. T-Iron has also been bringing good prices, say 19 francs the 100 kilos. Merchant Iron has been less favored, the demand having slightly fallen off: No 3 has been keeping up well hitherto, but will be soon, we fear, as much neglected as No. 2. No conclusions are, however, to be drawn from this; on the contrary, the extraordinary revival which the Iron trade has been and is undergoing will, from all appearances, make further headway. Thus the tendency in Pig Iron in France and abroad is a decidedly favorable one. Experiments with the forge drop hammer of 80 tons at the Marine Company's works at St. Chamond (Loire) have been made to the entire satisfaction of parties interested. This drop hammer will forge Steel Ingots of 60 tons for gun making. Previously these prices were made at Rive-de-Gier. It should be remarked that railroads, the army and navy are not at present giving large orders for immediate execution, but the railways are ready to contract for 1880. This is important, inasmuch as it shows that our railroads do not expect a general decline later on. While large commands for immediate delivery are scarce, small orders abound, and Sheet Iron, in particular, remains in active request, especially in Picardy and Lombardy. *Coal.*—At Paris, at the North and in the Pas-de-Calais Coal is slack; St. Etienne is picking up.

SPAIN.

(Epoca.)

MADRID, Sept. 6, 1879.—*Metals.*—The government has published the official statistics of the average peninsular exports during the quinquennium 1874-78, compared with the corresponding period of 1869-73, according to which the exportation of Metals has considerably increased since pacification.

	1869-73. 5 years average. Tons.	1874-78. 5 years average. Tons.
Quicksilver	914	1,441
Copper in ingots	1,182	615
Iron in pigs	4,693	4,889
Lead " "	73,072	93,813
Calamine	35,764	45,243
Copper pyrites	226,467	403,616
Iron ore	455,874	845,038
Other ores	15,613	38,171
Total	793,679	1,438,826

Relief for the Yellow Fever Sufferers.

The following contributions have been received by the Hardware Board of Trade, Limited, for relief of the sufferers by yellow fever at Memphis and forwarded to the Howard Association of that city:

Bruce & Cook	$100
Wallace & Sons	100
Phelps, Dodge & Co	100
H. Boker & Co	100
Wiebusch & Hilger Hardware Co	100
Russell & Erwin Mfg. Co	100
Sargent & Co	100
Holmes, Booth & Haydens	100
A. A. Thompson & Co	50
Landers, Frary & Clark	50
J. L. Mott Iron Works	50
The Chas. Parker Co	50
Josiah Macy's Sons	25
Eaton, Cole & Burnham Co	25
Lalance & Grosjean Mfg. Co	25
United States Stamping Co	25
E. Ketcham & Co	25
H. L. Judd & Co	25
J. W. Frazier	25
Schoverling, Daly & Gales	25
F. & W. Clatworthy	25
Graham & Haines	25
Wm. Wilcox Mfg. Co	25
Spencer & Underhill	25
Chas. A. Schieren	20
Fernald & Sise	20
Smith, Cohu & Co	10
"Stranger"	10
Chas. L. Mead	10
Total to date	$2,370

U. T. HUNGERFORD, Treasurer.

NEW YORK, September 13, 1879.

To the Hardware Board of Trade, New York City.—GENTLEMEN: I am in your city representing the Howard Association of Memphis, who, in calamities like the one now visiting that city, become the medium by which the friendless fever-stricken victim receives the charity of his more fortunate fellow-men. At least 60 days will elapse before our city will be relieved, by the advent of frost, from the scourge that is daily adding to the already long list. There are at present about 400 patients under our charge, who are dependent upon us for physicians, nurses, medicines and nourishment, there being neither work nor wages now in our city. Unless aid is forthcoming immediately these patients must be abandoned to their fate, as the generous donations already received will be exhausted in a few days. Our expenses are averaging $1000 daily. To New York, whose generosity in the past is well remembered, I earnestly appeal, through your board, for aid for these unfortunate human beings. Very respectfully, your obedient servant, A. D. LANGSTAFF,

President Howard Association, Memphis.

The above letter, from A. D. Langstaff, president, &c., having been received by the Hardware Board of Trade, Limited, it was

Resolved, That this board commend this plea to the benevolence of their fellow-citizens, and respectfully solicit contributions therefor.

All moneys sent to this board will be forwarded at once and without expense to the Howard Association at Memphis. Checks should be drawn to the order of the Hardware Board of Trade, Limited, and sent to them at Nos. 4 and 6 Warren street, New York city. By order of the board.

JAMES H. GOLDEY, Actuary.

Dated NEW YORK, Sept. 13, 1879.

The Late Charles Bliven.

Mr. Charles Bliven, one of the best known and most respected hardware men of the country, died at Cornwall, N. Y., on the 22d inst., and will to-day be buried from his residence, 146 West Thirty-fourth street, in this city. The story of Mr. Bliven's life, which we regret our inability to give this week in detail, would be a history of the American hardware trade for more than a quarter of a century. He began life as an apprentice in a hardware house at Saratoga, where he learned the business as thoroughly as the opportunities offered in a small country town permitted. He came to New York about 1839, and secured a clerkship in the employ of George Briggs, with whom he afterward formed a partnership. The firm continued under the style of Geo. Briggs & Co., until January 1, 1848, when Mr. Briggs retired. The business was continued by Mr. Bliven and Mr. Mead, until 1866, when their interests were consolidated under the names of the Hart Manufacturing Company and the Hart, Bliven & Mead Manufacturing Company. Mr. Bliven was 61 years of age at the time of his death, and had continued in active business until March last, when he was taken sick. Since that time he has been an invalid. He was widely respected in social and business circles, and will be sincerely mourned by all who knew him.

Commencement of Work on the Hudson River Tunnel.

A reporter for *The Iron Age* yesterday visited the grounds in Jersey City, about midway between the Erie and the Delaware, Lackawanna and Western Railway depots, and found Col. Haskin, President of the Hudson Tunnel Company, personally superintending about 40 men who were hard at work. The vertical shaft, which is now being sunk at the rate of 2½ feet a day, is covered by a weather-beaten frame shed. Fifteen masons were laying brick on the top of the walls, while a number of laborers were working in the bottom of the pit. Col. Haskin states that the shaft is slipping down finely and everything looks well. The opponents of the enterprise made a hard fight in the courts, but now the way is all clear, and it is expected that rapid progress will be made. More men will be put on as soon as the shaft is down and the "dumb archway" opened, where the tunnel proper will begin. The crown of the arch is now about even with the surface of the ground, but is gradually sinking as the excavation proceeds. Col. De Witt C. Haskin is a man of about 60 years of age, thick set, and is now apparently engaged in the crowning work of his life. He is enthusiastic in this great undertaking, sanguine of success, and predicts great changes to result from the concentration of railway traffic in the future tunnel between New York city and New Jersey, where some half dozen important lines of railway have their terminus. The method of pushing the headings is not yet fully determined, but the present intention is to use compressed air as an auxiliary. The manner of introducing the "air lock," consisting of an iron cylinder, 15 by 6 feet, with hinged doors, &c., we have already mentioned in these columns. The length of the tunnel will be about one mile under the river and three-quarters of a mile on either side, making 12,000 feet altogether. The extreme grade on either side of the river is 2 feet in 100, descending toward the center, where it will be 3 feet in 100. Excepting a small bed of rock near New York and some sand, the material to be penetrated consists mostly of a tenacious silt. The greatest depth of water above the tunnel will be 60 feet. The estimated cost of the entire work is about $10,000,000. The tunnel, according to calculations, will be able to pass 400 trains a day.

The Charcoal Iron Makers' Association.

An adjourned meeting of the National Association of Charcoal Iron Manufacturers was held in the Continental Hotel, Philadelphia, on the 18th inst. The attendance was large. The temporary chairman, Robert Valentine, of the Bellefonte Iron Company, occupied the chair. The committee appointed in July last to draft a constitution and by-laws and to nominate officers for a permanent organization, reported a preamble and resolutions, as follows:

The objects of this association are to procure regular statistics of all manufactures of iron by the use of charcoal as fuel; to provide for the mutual interchange of practical and scientific knowledge and experience in that branch of metallurgy, and to take all proper measures for advancing and protecting the interests of the trade in all its branches. The constitution provides that the title of the association shall be the "United States Association of Charcoal Iron Workers;" that the organization shall consist of a president, vice-president and board of managers, the latter to consist of a representative from every five furnaces of each State in the Union, provided no State shall have less than one member; that the funds of the association shall be subject to the disposition of an executive committee created by the board of management, provided that body at no time shall make itself liable beyond the funds in the treasury; and that no person interested financially or practically in any process of charcoal-iron manufacture shall become a member by the payment of $5 a year, provided no furnace can be represented for less than $10.

During a 15 minutes' adjournment Gen. Taylor, of Alabama, stated that beyond question the tariff fight would engage the attention of Congress during the coming winter. He believed the tax on iron had brought the trade into disrepute, the tariff on steel rails causing all the trouble. This he contended was simply a protection on Bessemer's patents, and when tariffs simply protected patents it was time to stop.

General Lapsley, of Alabama, said: I would like to see the tariff on steel so high that Mr. Vanderbilt could not again send to England for steel rails without paying a high price for the privilege. I would like to put about $5 more a ton on him than he paid for that iron. I protest against one of the largest railroads of the country sending to England for a material which can be obtained just as good in the United States. If there was a Chinese wall thrown around us we could thrive; we are a world within ourselves. The foreign commerce of the United States I feel must have its foundation in home protection. Therefore our American manufacturers and exporters should be fortified and not have a commodity thrown at their door to be sold under them. One great trouble was that the statesmen of the country were all lawyers and theorists, who studied political economy from English books, and had imbibed English ideas. He was against theorists, because theory had done more harm to this country than anything else. Another trouble was that the railroads of the country say to Congress, "do this" or "do that," and Congress does it. There is one thing he would like, and that was to get some man to raise the American flag of industry, and tear down that nasty, dirty bloody shirt.

Mr. Willard Warner thought that, as interests representing millions upon millions of capital were present, and back of them their employees, who chose representatives from the representative districts, it was clearly the employer's duty to see that his men voted for candidates who would enter the halls of Congress with proper ideas on the subject of iron and its tariff. When the body was reconvened the following permanent officers were chosen: President, Geo. B. Weisling, Mont Alto Works, Franklin County, Pa.; vice-president, Willard Warner, Alabama. Managers—Alfred L. Tyler, Alabama; Robert Valentine, Henry Townsend and J. C. Fuller, Pennsylvania; Charles E. Coffin, Maryland; Charles Campbell, Ohio; M. S. Elfort, Kentucky; S. A. Johnson, Booneville, N. Y.; J. Garrett, Tennessee.

Mr. Weisling, in taking the chair, referred to the tariff question, stating that he believed the trouble lay in the fact that, while other branches of the iron trade had in the past been allowed to press their claims, the charcoal iron makers had been quiet. He denied statements which had been made to the effect that the reason of the charcoal iron makers meeting was that they feared their occupation was nearly gone. There are in Pennsylvania 37 stacks for making charcoal iron, while the stacks of all descriptions number 275.

After some general discussion the meeting adjourned *sine die.*

The Iron Age Directory

and Index to Advertisements.

B. KREISCHER & SONS,

FIRE BRICK.

BEST AND CHEAPEST.

Established 1845.

Office, foot of Houston Street, East River, NEW YORK.

NEWTON & CO.,

Successor to

PALMER, NEWTON & CO.,

ALBANY, N. Y., Manufacturers of

FIRE BRICK

Stove Linings,

Range and Heater Linings

Cylinder Brick, &c., &c.

M. D. Valentine & Bro

Manufacturers of

FIRE BRICK

And Furnace Blocks

DRAIN PIPE & LAND TILE.

Woodbridge, - - - N. J.

PERTH AMBOY TERRA COTTA CO.,

Successors to

A. HALL & SONS, Perth Amboy, N. J.,

ARCHITECTURAL TERRA COTTA

AND

FIRE BRICK.

170 Broadway, NEW YORK.

Brooklyn Clay Retort

AND

FIRE BRICK WORKS.

Manufacturers of Clay Retorts, Fire Bricks, Gas House and other Tile, Cupola Brick, &c. Dealers in and Miners of Fire Clay and Fire Sand. Clay bank at Hurt's Creek, New Jersey. Manufactory: Van Dyke, Elizabeth, Richards and Partition Sts., Brooklyn, N. Y. Office No. 88 Van Dyke St.

Watson Fire Brick Manufactory

ESTABLISHED 1836.

JOHN R. WATSON, Perth Amboy, New Jersey.

Manufacturer of

FIRE BRICK,

For Rolling Mills, Blast Furnaces, Foundries, Gas Works, Lime Kilns, Tanneries, Boiler and Grate Setting, Glass Works, &c.

FIRE CLAYS, FIRE SAND, AND KAOLIN FOR SALE.

HENRY MAURER,

Proprietor of the

Excelsior Fire Brick & Clay Retort Works,

Manufacturer of FIRE BRICK, HOLLOW BRICK AND CLAY RETORTS.

WORKS PERTH AMBOY, NEW JERSEY

Office & Depot: 418 to 422 East 23d St., N. Y.

TROY FIRE BRICK WORKS

Troy, N. Y.,

JAMES OSTRANDER & SON,

ESTABLISHED 1848,

Manufacturers of

FIRE BRICK,

Tuyeres, Tiles, Blast Furnace Blocks, etc. Miners and dealers in Woodbridge Fire Clay and Sand, and Staten Island Kaolin.

Established 1864.

GARDNER BROTHERS,

MANUFACTURERS OF

STANDARD SAVAGE

Fire Brick, Tile & Furnace Blocks,

OF ALL SHAPES AND SIZES.

Clay Gas Retorts and Retort Settings,

AND

Miners and Shippers of Fire Clay.

OFFICE: 376 Penn Ave., Pittsburgh, Pa.

WORKS: Mt. Savage Junction, Md., and Lockport, Pa

BORGNER & O'BRIEN,

Manufacturers of

Fire Bricks,

Clay Gas Retorts,

Retort Settings,

Tiles, Blocks, &c., &c.

23d St., below Vine,

PHILADELPHIA.

Eighteen years' practical experience.

CYRUS BORGNER. WM. J. O'BRIEN

MILLER'S BRICK PRESSES

(Established 1844),

FIRE and RED BRICK,

And Brickmakers' Tools in General.

SAML. P. MILLER & SON,

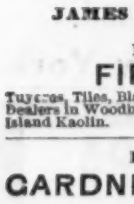
309 South 5th St., Philadelphia.

W. & J. TIEBOUT,

Manufacturers of

Brass, Galvanized & Ship Chandlery Hardware,

No. 290 Pearl Street, New York.



Sold by the hardware trade

"DRAW CUT"

BUTCHERS' MACHINES.

Choppers, Hand and Power

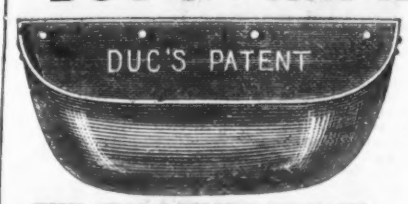
Stuffers,

Lard Presses.

Warranted thoroughly made and the BEST IN USE.

MURRAY IRON WORKS, Burlington, Iowa.

DUC'S IMPROVED ELEVATOR BUCKET.



THE STORE-HOUSE BUCKET.
(Partial straight front.)
In 12 in., 14 in., 16 in. and 17 in. Sizes.

Made of Best Charcoal Stamping Iron.

No Corners to Catch.

Light Running and Very Durable.

The only Scientifically Constructed Elevator Bucket in the Market.

The MILL BUCKET.
In 3½ in. to 10 in. Sizes.

T. F. ROWLAND,

Sole Manufacturer,

CONTINENTAL WORKS, Brooklyn, E. D., N. Y.

Send for Circular.

NICHOLSON FILE CO.,

Manufacturers of

FILES AND RASPS.

ALSO

Filers' Tools & Specialties.

Manufactory and Offices at Providence, R. I.

The following space will be used in illustrating our specialties, the matter being changed weekly.

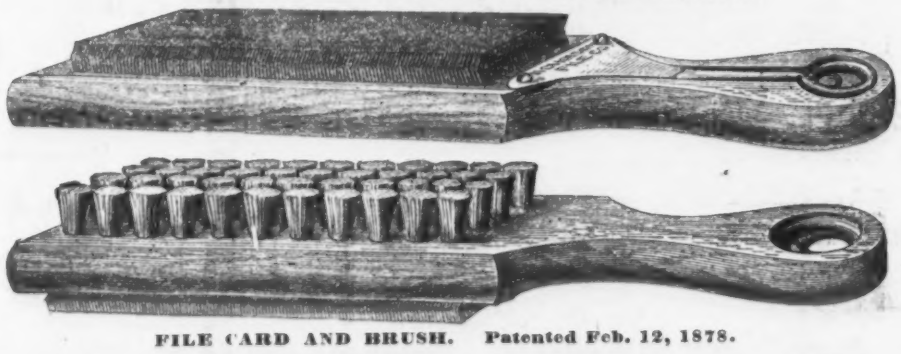
STUB FILES AND HOLDER.

FILES DETACHABLE. Patented June 4, 1878.

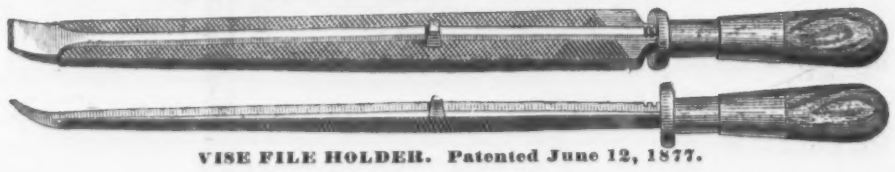
PILLAR. REAPER. PITSAW. THREE-SQUARE. CABINET.

MACHINISTS' SCRAPERS.

SURFACE FILE HOLDER, Patented June 12, 1877.



FILE CARD AND BRUSH. Patented Feb. 12, 1878.



VISE FILE HOLDER. Patented June 12, 1877.

G. W. Bradley's Edge Tools.

Butchers' Cleavers,
Butchers' Choppers,
Axes and Hatchets,
Grub Hoes and Mattocks,
Mill Picks,
Box Chisels and Scrapers,
Ring Bush Hooks,
Ax Eye Bush Hooks,
Socket Bush Hooks,
Watt's Ship Carpenters' Tools,
Carpenters' Drawing Knives,
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FOR SALE BY

MARTIN DOSCHER, Agent, 96 Chambers Street, N. Y.

Established 1838.

Bevin Bros. Mfg. Co.,

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Manufacturers of

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House, Tea, Hand, Gong Bell &c.

Tell Metal Kettles.

John T. Lewis & Bros

No. 231 South Front St., PHILADELPHIA.

JOHN T. LEWIS & BROS. WARRANTED PURE WHITE LEAD. PHILADA.

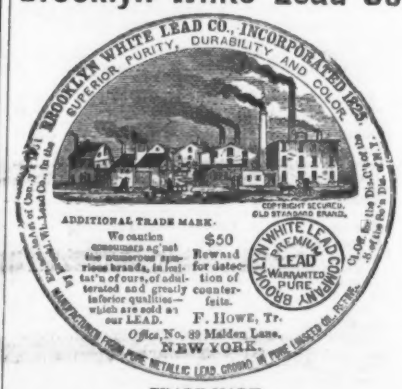
TRADE MARK.

MANUFACTURERS OF

Pure White Lead, Red Lead, Litharge, Orange Mineral, Linseed Oil,

AND PAINTERS' COLORS

Brooklyn White Lead Co.



TRADE MARK.

White Lead, Red Lead & Litharge.

89 Malden Lane, NEW YORK.

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JOHN JEWETT & SONS

Manufacturers of the well-known brand of

WHITE LEAD.

JEWETT & SONS' PERFECTLY PURE WHITE LEAD.

TRADE MARK.

ALSO MANUFACTURERS OF

LINSEED OIL.

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ATLANTIC WHITE LEAD. PURE. WARRANTED ROBERT COLGATE & CO.

TRADE MARK.

The Atlantic White Lead and Linseed Oil Co.,

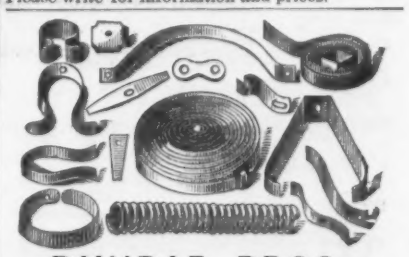
MANUFACTURERS OF

White Lead (Atlantic), Red Lead, Litharge & Linseed Oil.

ROBERT COLGATE & CO.,

287 Pearl Street, New York

S. H. JENNINGS. 239 Front St., New York. Importer of and Sole Agent in the United States for JENNINGS'S A. A. ENGLISH WHITE LEAD, RED LEAD and LITHARGE. *Genuine. Best Quality. Low Prices.* Please write for information and prices.



DUNBAR BROS.,

Manufacturers of

Clock Springs and Small Springs

of every description, from best Cast Steel,

BRISTOL, CONN.

Torrey's Door Springs.

P. R. DUNNE,

Manufacturer,

182 Fulton St., NEW YORK.

HENRY DISSTON & SONS

KEYSTONE SAW, TOOL, STEEL and FILE WORKS,

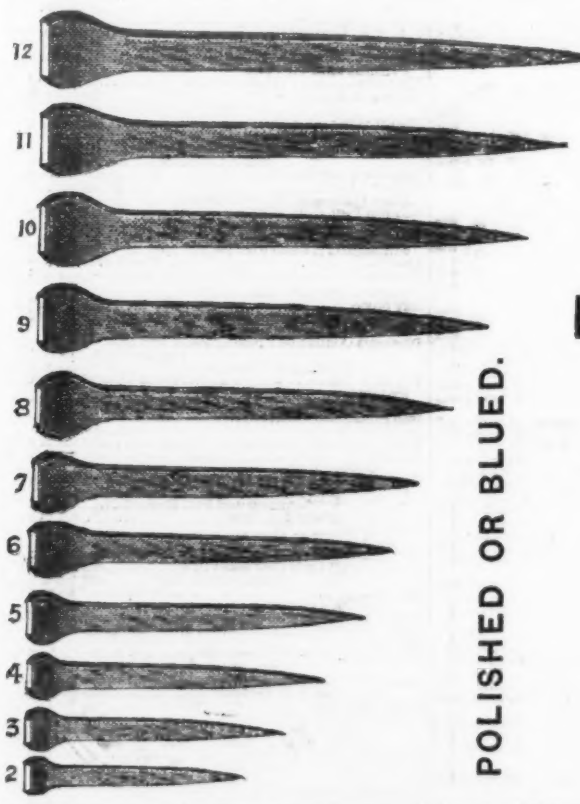
Front and Laurel Streets, Philadelphia,

MANUFACTURERS OF

SAWS OF ALL KINDS, FILES AND TOOLS, AND SPECIAL GOODS MADE FROM SHEET STEEL

All goods stamped Henry Disston & Sons, and bearing our trade mark, are fully warranted.

Branch Works, Tacony, Philadelphia. **Branch House, Randolph & Market Streets, Chicago, Ill.**



AUSABLE HORSE NAILS, Twisted, Bent and Drawn COLD.

Hot Forged and Cold Hammered Pointed,

Are the **only Nails in market** that are made in imitation of the **Hand Process.** They have **the uniformity of Machine** Nails and the **toughness** of those hammered by hand Our

HOT FORGED AND COLD HAMMERED POINTED NAILS

Are the Standard Nails,

and are **acknowledged to be the best in the market.** They are used by the **best shoers** in **New York, Brooklyn, Philadelphia, Chicago, Saint Louis, Milwaukee, Baltimore,** &c., and

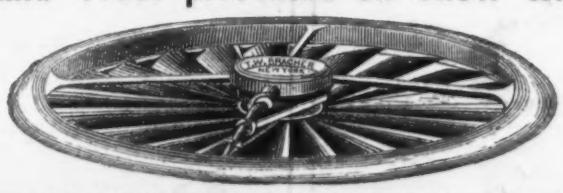
GENERALLY THROUGHOUT THE UNITED STATES.

They also compete successfully in Foreign Countries with machine and hand-made Nails of their own manufacture.

AUSABLE HORSE NAIL CO.,

4 Warren St., New York.

Steam and Frost prevented on Show Windows.



REVOLVING VENTILATORS

For everything (and every size), from a hat or cap to an exhibition building.

Kitchens, Laundries, &c., ventilated without draft. Durable, strong, without rivets or solder. Oiled for six months. Each one has storm cap. Retail price, size six inch diameter, $1.00 and upwards; apparatus with which any one can cut circles in glass, 15 cents each.

Protective Ventilators avoid drafts, exclude dust, dampness, malaria and germs of disease; adopted by hospitals, schools, institutions, &c.; applied to any window or room.

Prof. A. L. Loomis, M. D., University of City of New York, writes as follows:

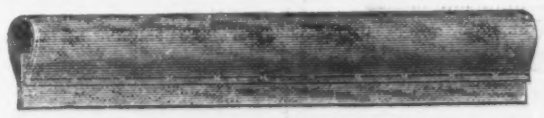
"From my personal experience and that of my patients who have used your Ventilator during the past six months, I am convinced that your method of removing dust, impurities and dampness from the atmosphere is the best which has as yet been proposed. By it the air in an apartment can be constantly changed without causing drafts. I would especially recommend its adoption in sick rooms, sleeping apartments, nurseries and school rooms."

Air Filters and Moisteners, placed over hot-air registers of furnaces, &c., prevent dust and supply *steam filtered air.* Prices and discounts to the trade sent on application.

The "Economy" Metallic Weather Strip

is perfect in every respect. Any one can adjust it, and when in position thoroughly excludes cold, dust, rain, and prevents rattling.

Put up in Coils of 50 feet. It is cheap, durable and portable.



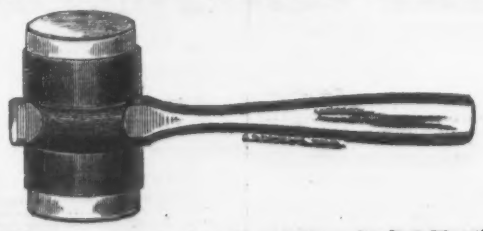
SOLD BY HARDWARE AND HOUSE FURNISHING TRADES, AND BY

BRACHER VENTILATOR CO., No. 3 Park Row, New York.

CHAMBERLAIN & KISSAM, Agts., No. 12 Murray St., New York.

PENFIELD BLOCK WORKS, Lockport, N. Y., U. S. A.

Full Line **CARPENTERS' MALLETS.**



HENRY B. NEWHALL 11 WARREN ST. N NEW YORK AGENT

No. 14, Round Mallet, Heavy Iron Socket Mortised Handle.

Send for APPENDIX A, illustrating Mallets, Ten-Pins and Ten-Pin Balls and new style Metal Plug Faucets.

N. B.—From this time forward all our quotations will be for present prices only, and subject to change without notice. If metals keep advancing Pulley Blocks and other goods must follow. "A word to the wise," &c.

WM. H. HASKELL & CO.,

Pawtucket, R. I.

MANUFACTURERS OF

COACH SCREWS

(With Gimlet Points),

ALL KINDS OF

Machine and Plow Bolts,

FORGED SET SCREWS,

AND

TAP BOLTS.

HENRY B. NEWHALL 11 WARREN ST. N NEW YORK AGENT

Bemis & Call Hardware & Tool Co.

This Wrench can be furnished with Briggs' Pat. Nut or Sleeve.

PATENT COMBINATION WRENCH.

These Wrenches are made from the best of Wrought Iron, with Steel Head and Jaw, case-hardened throughout, and not only combine all of the superior qualities of our Cylinder or Gas Pipe Wrenches, but also all requisite Combinations of a regular Nut Wrench, thus making a combination which has no equal

For Circulars and Price List, address

BEMIS & CALL HARDWARE & TOOL CO., Springfield, Mass.

Iron and Brass Wood Screws.

TRADE MARK BEST CHAR COAL IRON WOOD SCREWS

We manufacture a full line of

IRON AND BRASS SCREWS.

Quality, finish and tests as to strength, guaranteed equal to any in the market.

Hoping to hear from you, and when ready to purchase will quote discounts.

Philadelphia Screw Co.,

Twelfth and Buttonwood Streets.

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Bergen Port Spelter

MINES: Lehigh Valley, Pa. WORKS & FURNACES Bergen Port, N. J.

The only Miners and Manufacturers of

PURE

LEHIGH

SPELTER

From Lehigh Ore.

Especially adapted for

Cartridge Metal and German Silver.

Also manufacturers of

BERGEN PORT OXIDE ZINC.

Superior for LIQUID PAINT on account of its body and wearing properties.

F. OSGOOD & CO., Proprietors.

E. A. FISHER, Agent, 13 Burling Slip, N. Y.

A. B. GUNNISON,

MANUFACTURER OF

WOOD

PUMPS

ERIE, PA.

ESTABLISHED, - 1856

Warranted Genuine

Cucumber Pumps & Pipe. Also Pop Pumps, Lined Pumps, &c.

The Trade Supplied by

H. B. GRIFFING, 60 Cortlandt St., N. Y.

P. MANN, Washington, D. C.

SCOBIE, HARRISON & PARKER, 125 Liberty Street, Pittsburgh, Pa.

KNECHT & THOMAS, Winchester, Ind.

—AND BY—

A. B. GUNNISON

Manufacturer, ERIE, PA.

THE "EDDY" STRAIGHTWAY

VALVES.

ALSO,

FIRE HYDRANTS.

Axe, Hatchet, Powder and Brush Machinery.

MOHAWK & HUDSON MFG. CO.,

WATERFORD, N. Y.

BENTON, FAULKNER & BIRD, 16 New Church street, New York Agents.

GEO. M. EDDY & CO.,

Manufacturers of

Measuring Tapes

Of Cotton, Linen & Steel.

FOR ALL PURPOSES.

351 to 353 Classon Ave. Brooklyn, N. Y

New York Wholesale Prices, September 24, 1879.

HARDWARE.

Anvils.
Eagle Anvils (American)....⅌ ℔ 9c dis 20 %
Wright's....⅌ ℔ 10¼c over 250 ℔s 10¾c
Armitage's Mouse Hole....9½ @ 9¾c
Trenton....10c

Augers and Bits.
Conn. Valley Mfg. Co. / Douglass Mfg. Co / Humphreysville Mfg. Co / Ives / Beecher (French, Swift & Co) / Griswold / Nobles Mfg. Co / Fasson's Patent....dis 50 %
Cook's, Douglass Mfg. Co....dis 50&5 %
Cook's, Ives'....dis 45&10 %
Snell Mfg. Co.'s C. S. Augers....dis 50&10 %
" " B. Machine....dis 50&10 %
" " C. S. Bits....dis 40 %
" " Jenning's Bits....dis 35 %
Patent Solid Head....dis 30 %
Russell Jennings' Auger, Dowel, Machine-Dowel and Hand-Rail Bits....dis 10&10&10 %
Russell Jennings' Augers....dis 16⅔&10&10&10 %
Russell Jennings' Car and Machine Bits, Boring-Machine and Millwrights' Augers, dis 25&10&10&10 %
Imitation Jenning's Bits....dis 40@45 %
Ives' "Jennings" Bits....dis 33⅓&10 %
Lewis' Single Twist Bits....dis 40 %
Andrews Bits....dis 50 %
Griswold's Patent Bits....dis 30 %
Expansive Bits, Clark's, small, $18; l'ge, $26....dis 25 %
" " Ives....$20 @ $30—dis 33⅓ %
" " Blake's....$30—dis 40 %
" " Parmelee's....$20 and $30..dis 33⅓ %
Hollow Augers Ives' / French Swift & Co....dis 40 %
" " Douglas....dis 33⅓ %
" " Bonney's Adjust....⅌ doz $48—dis 40 %
" " Stearns' Adjust., ⅌ doz $48—dis 25&10 %
" " Ives' Expansive ...each $4.50—dis 40 %
" " Univ'sal Expansive, each $4.50—dis 20 %
Gimlet Bits....$7.50 ⅌ gross, dis 50 %
" Diamond....⅌ doz $1.00 dis 25&10 %
" "Bee"....dis 45&10 %
Double Cut Gimlet Bits Shepardson's....dis 40&10 %
" " Ct. Valley Mfg. Co...dis 30&10 %
" " Hartwell's....dis 60&10&10 %
" " Douglass'....dis 40 %
" " Ives'....dis 50&10 %
Morse's Bit Stock Drill, List of May 15, '78....dis 25 %
L'Hommedieu's Ship Augers....dis 15 %
Watrous Ship Augers....dis 15 %

Awl Hafts.
Sewing, Brass Ferrule....$3.50 ⅌ gross—dis 40&10 %
Peg " "....3.50 " dis 40&10 %
Patent Sewing, Short....$1.00 ⅌ doz—dis 40&10 %
" " Long....$1.40 ⅌ doz—dis 10 %
" Peg, Plain Top....$10.00 ⅌ gross—dis 40&10 %
" " Leather Top....12.00 " dis 40&10 %

Awls, Brad Sets, &c.
Awls Sewing, Common....⅌ gross $1.35—dis 25 %
" Sewing, Best....⅌ gross 1.40—dis 10 %
" Shouldered Peg....⅌ gross 2.25—dis 15 %
" Patent Peg....⅌ gross .60—dis 15 %
" Shouldered Brad....⅌ gross $2.70—dis 25&10 %
" Handled Brad....$7.00 ⅌ gross—dis 25&10 %
" Handled Scratch....$7.00 ⅌ gross—dis 25&10 %
" Socket Scratch....$1.00@$1.25 ⅌ doz—net
Brad Sets, Aiken's....⅌ doz $12.00—dis 45&10 %
No. 42, $10.50; No. 43, $12.50....dis 60&10 %
Stanley's Excelsior, No. 1, $9.60....dis 25&10 %
" " No. 2, 4.80...dis 25&10 %
" " No. 3, 7.80...dis 25&10%

Axes. Light. Med. Heavy.
M. H. Jones & Co....$8.00 $8.50 $9.00 ⅌ doz net.
Bloods....14.00 14.50 15.00....dis 35 %

Axles.
Common (Gus C. Hotchkiss, Field & Co.)....⅌ ℔ 3¼c
Solid Collar, Case Hardened, Chilled Box....⅌ ℔ 8c
Axle Grease.—Frazer's....⅌ ℔ 6c

Balances.
All Spring Balances....dis 25&10 %

Bells.
Hand, Light Brass....dis 75&10 %
" Extra Heavy....dis 50&5 %
" White Metal....dis 70 %
" Silver Chime....dis 25&10 %
" Globe (Cone's Patent)....dis 25&10 %
Gong, Abbe's....dis 30&10 %
" Yankee....dis 40&10 %
" Barton's....dis 40&10 %
Crank, Taylor's....dis 25&10 %
" Brook's....dis 50 %
" Cone's....dis 10 %
" Connel's....dis 50&10 %
Lever, Sargent's, new list Dec., '78....dis 60&10&10 %
" Taylor's Bronze or Plated Lever....net
" " Japanned Lever....dis 25&10 %
" R. & E. M. Co.'s....dis 50&10&2 %
Pull, Brook's....dis 50&10&2 %
" Western....dis 25&10 %
Call....dis 25 %
Cow, Common Wrought....dis 20&10 %
" Western....dis 20&10 %
" " Sargent's new list....dis 10 %
" Kentucky "Star"....dis 20&10 %
" " Sargent's new list....dis 10 %
" Dodge's Genuine Kentucky, new list—
Nos. 0 1 1½ 2 3 4 5 6 Hog
$12.00 10.00 9.00 8.00 6.00 5.00 3.50 2.50 5.00, dis 50&5 %
Yaw's Genuine....dis 50 %
Texas....dis 60&10 %
Wilson's (Moore's)....dis 60 %

Bellows.
Blacksmiths', Common....dis 45 %
" Extra and Pittsburgh Pattern....dis 20 %
Moulders....dis 25 %
Hand Bellows....dis 25%

Belting, Rubber.
N. Y. Belting and Packing Co....new list net

Bit Holders.
Extension, Barber's....⅌ doz $15.00—dis 40&5 %
" Ives'....⅌ doz $15.00—dis 40 %
Diagonal....⅌ doz $24.00—dis 40 %
Angular....⅌ doz $24.00—dis 40 %
Blind Adjusters.—Domestic....⅌ doz $3.00, dis 20 %
Blind Fasteners.—Mackrell's....dis 30 %
Van Sand's....No. 2000, per gross, $9.00 net
" old pattern....⅌ gross, $9.00 net
Washburn's Patent....⅌ gross $9.00 net
Merriman's....new list net
Mackrell's....⅌ doz. pairs, $0.65, dis. 10 %

Blind Staples.
Barbed, ½ in. and larger....⅌ ℔ 13c net
" ⅜ in....⅌ ℔ 20c net
Blocks.—Burr & Co....dis 25&10 %
Differential Pulley Blocks....dis 20 %
Penfield Block Works, Rope and Iron Strap'd..dis 45 %
" " " Wrot. Iron Com. bushed.dis 35 %
" " " all steel roll'r.dis 20 %
" " " Sheaves " " dis 35 %
Stanley R. & L. Co., Rope and Iron Strap'd..dis 35&10 %

Bolts.
Cast Iron Barrel, Shutter, &c....dis 60&10 %
Cast Iron Chain (Sargent's list)....dis 70&10 %
Bush's Lever and Chain Bolts....dis 40, 10&10 %
Wrought Barrel....dis 50&10 %
" Square....dis 50&10 %
" Shutter, all Iron, Stanley's list....dis 50&10 %
" " Brass Knob, " "..dis 35&10 %
" " Sargent's list....dis 55&10 %
" Sunk Flush, Sargent's....dis 66⅔&10 %
" " Stanley's....dis 35 %
" B.K.Flush, Com'n, Stanley's....dis 50&7½ %
" " " Ex. Heavy....dis 40&10 %
" "Plated Knob & Slide Flush"....dis 50&10 %
Carriage and Tire, Common....dis 75 %
" " Norway Iron....dis 70 %
" " Philadelphia....dis 70 %
" " Coleman....dis 60&10 @ 60&20 %
" " Shelton's....(old list) dis 70 %
R. B. & W. Carriage (old list)....dis 70&5 %
Tire, Am. Screw Co.'s, Phila....dis 70&5 @ 70&10 %
" "Bay State"....dis 80 %
" R. B. & W....dis 70&10&5 %
Star (Phila)....dis 60&10@60&20 %
Stove—American Screw Co.'s....dis 50 %
" R. B. & W....dis 50 %
Plow....dis 50&10 %
" R. B. & W....dis 50 %
Machine, List of July 15, '79....dis 60 %
Bolt Ends "....dis 60 %
Borax....10¾@11¼c ⅌ ℔ net

Boring Machines. Upright. Angular.
First quality, no Augers....$5.00 $6.75 dis 45&10 %
" with Augers....8.50 10.25 dis 45&10 %
Snell's, no Augers....2.75 3.50 net.
Phillips' with Augers.... .... 11.00 dis 40 %
Braces.—Barber's Patent....dis 40&5 %
O. S. Backus....dis 50&10 %
Wilson Mfg. Co....dis 10 %
Spofford's Patent....dis 50&10 %
Noble's Patent....dis 40&5 %
Ives' Patent Braces....dis 55@55&10 %
Common Ball (American)....dis 50 %
Brackets.—Shelf (Sargent's) Fancy....dis 66⅔&10 %
Swing (T. & S. Mfg. Co.)....dis 33⅓ %
Bright Wire Goods list of July 8, 1879..dis 35&10 %
Bull Rings.—Union Nut Co....dis 50&20 %
Sargent's....dis 70&10 %
Hotchkiss'....low list dis 35 %
Humason Beckley & Co.'s (low list)....dis 60&10 %

Butts.
Wrought Brass....dis 55 %
Cast Brass, Tiebout's....dis 40&10 %
" Corbin's....dis 50&10 %
COMMON CAST, NOT DRILLED
Fast Joint, Narrow....dis 50&10 %
" Broad....dis 55&10 %
Loose Joint, Narrow and Broad....dis 60&10 %
DRILLED AND WIRED.
Fast Joint, Narrow....dis 50&10 %
" Broad....dis 55&10 %
Loose Joint....dis 60&10 %
" Japanned....dis 60&10 %
" with Acorns....dis 65&10 %
Parliament Butts....dis 60&10 %
Mayer's Hinges....dis 65&10 %
Loose Pin no Acorn....dis 60&10 %
" Acorns....dis 65&10 %
" Japanned....dis 65&10 %
" Plated Tips....dis 65&10 %

WROUGHT IRON.
Fast Joint Narrow / Lt. Narrow / Broad / Loose Joint, Broad / Table Butts, Back Flaps, &c. / Inside Blind, Regular / " Light / Loose Pin, Wrt.....See Trade Report
Spring Hinges—
American Spiral Spring Butt Co., Jap'd....dis 25 %
" " " Fancy....dis 10 %
Geer's Single and Double Acting....dis 25 %
Sabin Mfg. Co.'s Double Acting....dis 35 %
Union Spiral Spring, Japanned....dis 25 %
" " Ornamental....dis 20 %
Union Spring Hinge Co.'s....dis 25 %
American Spring Hinge Co.'s....dis 25 %
Union Mfg. Co....dis 25 %
Bommer's....dis 25 %
Blind Butts, Parker....dis 75@75&10 %
" Palmer....dis 40&10&10&2 %
" Seymour....dis 70&10 %
" Shepard....dis 75&10 %
" Lull & Porter....dis 66⅔&10 %
" Nicholson....dis 45&10 %
" Huffer....dis 50&10 %
" Clark's, Nos. 1, 3, 5, 40 and 45 dis 75@75&10 %
" Buffalo "Noiseless"....dis 75@75&10 %
" Sargent's No. 12....dis 75&10 %

Bow Pins.
Hotchkiss'....low list dis 10 %
Humason, Beckley & Co.'s (low list)....dis 60&10 %
Sargent & Co.'s....$19.70 and $21.40, dis 70&10 %

Butchers' Cleavers.
Humason & Beckley Mfg. Co....dis 25 %
Bradley's....dis 25 %
Beatty's....dis 25&10 %
1 2 3 4 5 6 7 8
$16.50 19.00 21.50 24.00 27.00 30.00 33.50 36.50

Can Openers.
Messenger's Comet....⅌ doz $3.00, dis 25 %
American....⅌ doz $2.00, dis 75 %
Duplex....⅌ doz 25c, dis 15@20 %
Lyman's....⅌ doz $3.75, dis 20 %
Poole....⅌ doz $3.75, dis 40 %
No. 4, French....⅌ doz $2.25, dis 60 %
No. 5, Iron Handle....⅌ gross $6.00 net
Eureka....⅌ doz $2.50, dis 10 %
Sardine Scissors....⅌ doz $7.00, dis 55 %
Star....⅌ doz $5.00, dis 25 %
Sprague....dis 50&10 %

Caps—Percussion, ⅌ 1000.
G. D. & S. B....30c
Double Waterproof, in 1-10's....$1.20
Colt's Pistol, "....65c
Musket, 1-10 "....60c
F. L....50c / E. B. 1-10, Trimmed....65c / E. B. 1-10 Ground Edge....70c } dis 10&5 %
Cartridges.—Metallic....dis 60&10&5 %
Cards.—Horse and Curry....dis 33⅓&10 %
Cotton....dis 25&10 %
Wool....dis 25&10 %
Car Pusher.—"Giant"....$6.25 each, dis 20 %

Carpet Stretchers.
Cast Steel, Polished....⅌ doz $5.00, dis 30 %
" Iron Steel Points....⅌ doz $2.00, dis 55 %

Casters.
Bed....dis 40&10 %
Plate and Shallow Socket....dis 40&10 %
Deep Socket....dis 20&10 %

Cattle Leaders.
Hotchkiss' Sons'....dis 10&10 %
Humason, Beckley & Co.'s (low list)....dis 60&10 %
Sargent's....dis 70&10 %

Chain.
Trace, 6½-12-2....⅌ pair 79c / 6½-10-3....⅌ pair 70c / 7-10-2....⅌ pair 86c } dis 30 %
German Halter Chain....dis 40&10 %
" Coil....dis 40&10 %
Oneida Halter Chain....dis 40 %
Galvanized Pump Chain....⅌ ℔ 10½c dis 20 %
Jack Chain, Iron....dis 60&10&10 %
" Brass....dis 55&10 %

Chalk.
White....⅌ gross 55c net
Red....⅌ gross 75c net
Blue....⅌ gross 90c net
White Crayons....⅌ gross 14c net

Chisels.
Socket Framing, Crossman....dis 70 & 5 %
" Buck Bros....new list, dis 25 %
" Merrill....dis 70 %
" Witherby Tool Co....dis 70 %
" Douglass'....dis 70 %
" Firmers, Crossman....dis 70&5 %
" Buck Bros....new list, dis 25%
" Merrill....dis 70 %
" Witherby Tool Co....dis 70 %
" Douglass'....dis 70&5 %
" Corner....dis 65@70 %
Tanged Firmers extra....dis 40 %
" Butcher's....$5.00 @ $5.25 to £
" Spear & Jackson's....5.00 to £
" Buck Bros (shank)....5.00 to £

Clamps.
Iron, Providence Tool Co.'s, Wrt. Iron....dis 25 %
" Adjustable, Gray's....dis 20 %
" " Lambert's....dis 20 %
" " Snow's....dis 40&5 %
" " Hammer's....dis 15 %
" " Stearns'....dis 15&10 %
" Cabinet, Sargent's....dis 60&10&10 %
" Carriage Makers', Sargent's....dis 60&10&10 %
" Cord and Tape (T. & S. Mfg. Co.)....dis 30 %

Clips, Axle.
Norway or Best....dis 60&10%
Superior....dis 60&10 %
Cockeyes....1¼ in., 28c.; 1⅜ inch, 33c.; 1¾ in., 37c, net

Cocks, Brass.
Racking....dis 45 %
Globe....dis 45 %
Plain Bibbs....dis 45 %
Ale and Beer....dis 50 %

Coffee Mills.
Board and Box....dis 25 %
Increase Wilson's....net
Selsor's Pat....$9.50, $10.50, dis 25 %
American (Enterprise Mfg. Co.)....dis 20 %
French Steel....dis 20 %
The Swift (Lane Bros.)....dis 25 %

Combined Dinner Pail and Lantern.
Per doz $15.00....dis 30 %

Compasses, Dividers, &c.
Compasses....dis 50&10 %
Callipers....dis 55&10 %
Dividers....dis 60%
Bemis & Call Co.'s Dividers....dis 60&20 %
" " Compasses & Callipers....dis 55 %
" " Wing & Inside or Outside.dis 50&5 %
" " Double....dis 60 %
" " Call's Pat. Inside....dis 35&10 %
Cook's....dis 15 %
Excelsior....dis 50 %
Miller's Patent....dis 25 %

Coopers' Tools.
Bradley's....dis 15 @ 20 %
Corkscrews.—Humason & B....dis 40 %
Corn Knives and Cutters.—Bradley's..dis 10 %
Wadsworth's....dis 33⅓ %

Crow Bars.
Cast Steel....⅌ ℔ 6¼c
Iron, Steel Points....⅌ ℔ 4⅝c

Curling Irons, &c.
⅜, ⅝, ¾ in., $1.80 2.00, 2.40....dis 10 %
Curling Tongs....⅌ doz $3.65, dis 10 %
Pinching Irons....⅌ doz 7.50, dis 20 %

Curry Combs.
Fitch's (List of No. 240, $1)....dis 50 %
Hotchkiss' Novelty....dis 20&10 %
Lawrence....dis 40 %
Lawrence, with detachable Mane Comb....dis 30&10 %
Rubber....⅌ doz $9.00, dis 20&10 %
Curtain Pins.—Silvered Glass....dis 15 %
White Enamel....dis 15 %

Cutlery.
Meriden Cutlery Co. (Table)....net
Am. Miller Bro.'s Cutlery Co....dis 25 %
Humason & Beckley, Pocket....dis 33⅓ %
F. W. Rogers & Son, A. A....dis 40&5&5 %
Naugatuck Cutlery Co....list net
Aaron Burkinshaw's Pocket....dis 35 %

Dog Collars.
Embossed Gilt....dis 20 %
Leather....dis 30 %
Brass....dis 25 %

Door Springs.
Torrey's Rod....⅌ doz $2.10 net
Gray's "....⅌ doz $1.65, net
Bee Rod....⅌ doz $1.60, net
Gem (Coil)—
No. 1, Large, Japanned....⅌ doz $3.50 / No. 2, Medium....⅌ doz 2.50 / No. 3, Small....⅌ doz 2.00 } dis 20 %
Challenge (Coil)— Nos. 9 7 6
Japanned....⅌ doz $2.00 2.50 3.50
Coppered....⅌ doz 4.00 4.50 5.00
Galvanized....⅌ doz 3.50 4.00 4.50
Nickeled....⅌ doz 5.50 6.00 7.00 } dis 30 %
Premium (Coil)— Nos. 1 2 3
Japanned....⅌ doz $7.50 6.25 5.00
Nickeled....⅌ doz 11.00 9.50 8.00 } dis 30 %
Star (Coil)—For Cop'd, Nickel-Plated, &c. see list.
No. 4, ("Shoo Fly") Screen door size ⅌ doz $1.75
No. 5, Screen Door Size....⅌ doz $2.00
No. 6, Medium....⅌ doz 2.50
No. 7, Large....⅌ doz 3.50 } dis 25&10 %
Sabin's Lever..No. 1, $1; 2, $1.50; 3, $2; 4, $2.50; dis 35 %
Sabin's Boss, No. 1, $5.40; 2, $4.20; 3, $3.60. dis 40&10 %
Sabin's Crown....⅌ doz $2.75, dis 40&10 %
Philadelphia....5 in., $5.00; 8 in., $7.00, dis 35 %
Barker's Concealed....dis 20 %
Cowell's....No. 1, $18.00; No. 2, $15.00 ⅌ doz, dis 50 %
Rubber, complete....⅌ doz $1.90, net

Drawing Knives.
Crossman's No. 1....dis 70&5 %
Merrill....dis 70 %
Nobles Mfg. Co....dis 15 %
Bradley's....dis 35 %
Adjustable Handle....dis 20 %
Witherby Tool Co....dis 70 %
Douglass....dis 70 %

Drills and Drill Stocks.
Blacksmiths'....each $2.25 net
Blacksmiths' Self Feeding....each $7.50, dis 20 %
Breast, P. S. & W....dis 35 %
" Hotchkiss....dis 20 %
Breast, Wilson's....dis 20 %
" Miller's Falls....each $2.50, dis 25 %
" Bartholomew's....each, $2.50 dis 25&10 %
Ratchet, Merrill's....dis 25 %
" Ingersoll's....dis 25 %
" Whitney's....dis 30 %
" Weston's....dis 20 %
Moore's Triple Action....dis 20 @ 25 %
Whitney's Hand Drill....dis 50 %
Wilson's Drill Stocks....dis 10 %
Automatic Boring Tools....each $2.75, dis 30 %
Drill Chucks.—Morse's Beach Patent....dis 30 %
" Adjust..each $10.00, dis 30 %
Danbury....$8.00, dis 30 %

Egg Beaters.
Dover....⅌ gross, $42.00; doz $4.00 net
National....⅌ do dis 33⅓ %

Elevator Buckets.
Mill E. Buckets, light, 3½ to 10 in. (Duc's Improved) ⅌ 100 $15.00 @ $54.00, net
Mill E. Buckets, heavy, 5 to 10 inches (Duc's Improved) ⅌ doz $5.60 @ $10.20, net
Storehouse, (Duc's Patent) 12 to 17, $12.00 @ $20.00...net

Emery and Emery Paper.
Genuine Chester—Regular Nos....⅌ ℔ 6c
" " Flour and FF....⅌ ℔ 5c
" " in 10-lb. cans....2c extra
Washington Mills—Regular Nos....⅌ ℔ 8c
" Flour....⅌ ℔ 5c
Wellington Mills, Grain....⅌ ℔ 10c net
" " Flour....⅌ ℔ 8c net
Hampden Emery Grain....5c net
" " Flour....3c net
B. & A. Emery Paper....dis 20@25 %

Enameled and Tinned Ware.
Kettles....dis 45 %
Sauce Pans....dis 35 %
Tinned Sauce Pans....dis 35 %

Escutcheon Pins.
Iron....dis 33⅓ %
Brass....dis 45 %

Escutcheons.
Door Lock....Same discounts as Door Locks
Brass Thread....dis 60&10 %
Wood....dis 25 %

Faucets.
Fenn's....dis 50 %
Fenn's Cork Stops....dis 40 %
Star....dis 55&10 %
Frary's Patent Petroleum....dis 25&10 %
Wood and Metallic....dis 40 %
West's Patent Key....dis 45 %
Metallic Key, Leather Lined....dis 45 %
Cork Lined....dis 70&10 %
Enterprise (Self Measuring)....⅌ doz, $36.00, dis 20 %
Felloe Plates....⅌ ℔ 15c, dis 55 %

Files.
American File Co....$5.00 to £, dis 35 %
Auburn....$5.00 to £, dis 35 %
Arcade....$5.00 to £, dis 35 %
G. & H. Barnett....dis 25 %
Nicholson....(Nicholson List) dis 35 %
Heller & Bros....$5.00 to £ dis 25 %
Madden & Cockayne File Co....$5.00 to £, dis 25 %
J. & Riley Carr....4.50 to £
Stubs'....$7.00 @ 7.50 to £
Butcher's....4.50 to £
Walter Spencer & Co.'s "Diamond"....4.50 to £
Fisher's....4.75 to £
Moss & Gamble....4.50 to £
H. Disston & Sons (new list)....dis 35 %
Western (new list)....dis 35 %
Limet & Co. (French)....$4.25 to £

Fluting Machines.
Knox, 4-inch Rolls....$2.50 each net
" 6 " "....3.00 each net
" 8 " "....5.00 each net
Peerless, 4-inch Rolls....4.00 each net
" 5 " "....4.75 each net
Eagle, 3½-inch Roll....$1.62½ each net
" 5½ " "....$2.12½ each net
Eureka, No. 1, 7-inch Roll....6.50 each, dis 33⅓ %
" No. 2 5-inch Roll....5.50 each, dis 33⅓ %
Crown....4½-in., $2.62½; 6-in., $3.00; 8-in., $5.00 each net
Star....4½ in., $3.50; 6 in., $4.00 each net
Crown Jewel....6 in., $2.50 each net
Domestic Fluter....1.50 each net
Geneva Hand Fluter, No. 1....⅌ doz $15, dis 20 %
Crown Hand Fluter, Nos. 1, $12; 2, $10; 3, $8 ⅌ doz. net
Shepard Hand Fluter....No. 75 ⅌ doz $15, dis 10 %
" " "....No. 104, ⅌ doz $12.00 net
Clark's Hand Fluter....⅌ doz $15.00, dis 20 %
Combined Fluter and Sad Iron....⅌ doz 15.00, dis 30 %
Buffalo....⅌ doz 10.00, dis 10 %
Fluting Scissors....dis 45&10 %

Forks.
Hay, Manure and Spading....new list, dis 15 %
Plated "A 1, Rogers & Bro....dis 40&5 %
" Reed & Barton....dis 40&5 %

Fruit and Jelly Presses.
Enterprise Mfg. Co....dis 20 %

Fry Pans.
Burnished, list as follows....5....dis 65&10 %
No.... 0 1 2 3 4 5 6 7 8
⅌ doz....$3.00 $3.75 4.25 4.75 5.25 6.00 7.00 8.00 9.00
Acme Patent, same list as above....dis 45&5 %

Gauges.
Marking, Stanley's....dis 50&10 %
" Chapin's....dis 50&10 %
Wire....dis 10 %
" Smith's Patent....⅌ doz $18.00, dis 40 %

Gimlets.
Nail and Spike....dis 55 %
"Bee" Gimlets....⅌ gross $12.00 dis 60&10 %
"Eureka" Gimlets....dis 50 %
"Diamond" Gimlets....dis 40 %
Double Cut Shepardson's....dis 40&10 %
" " Hartwell's....dis 50 %
" " Ives'....dis 55 %
" " Douglass'....dis 40%

Glue Pots.
Tinned and Enameled....dis 45&5 %
Family, Howe's "Eureka"....dis 40 %
" L. F. & C.'s "Handy"....dis 35 %

Grindstone Fixtures.
Sargent's Patent....dis 50&10 %
Reading Hardware Co....dis 40&10&2 %
" " "Keystone"....dis 45&5&10&2 %

Hammers.
Maydole's, New List of Dec. 10th, 1878....dis 15 %
Cheney's, List January, '79....dis 25 %
H. Hammonds....dis 20 %
Verree....dis 5 %
Magnetic Tack, Nos. 1, 2, 3, $1.25, 1.50 and 1.75.dis 25&10 %
Warner & Noble's....dis 10 %
Kip's (new list, Dec. '78)....dis 30 %

Hand Cuffs and Leg Irons.
Providence Tool Co.'s Hand Cuffs, $15.00 ⅌ doz / " Leg Irons, $25 ⅌ doz } dis 10 %
Tower's....dis 25 %

Handles.—Door or Thumb Latches—
Nos.... 0 1 2 3 4
Per doz....$0.80 1.00 1.18 1.35 1.50....dis 60&10 %
Roggin's Latches....per doz 40c net
Bronzed Iron Drop Latches....⅌ doz 60 @ 80c net
Jap'd Store Door Handles—Nuts. $1.58; Plate $1.10 no Plate, 84c....net
Barn Door....per doz $5.00, dis 70 %
Wrought Chest....dis 70 %
Surface Chest, Sargent's list....dis 75&10 %
Flush Chest....dis 70&10 %
Lifting....dis 70 %
Saw and Plane....dis 40&10 %
Hammer and Hatchet....dis 20 %
Brad Awl....⅌ gross $2.00, dis 25&10 %
Hickory Firmer Chisel, assorted, ⅌ gross $4.50
" " " large, " 5.00
Apple " " assorted, " 5.00
" " " large, " 6.00
Socket " " assorted, " 3.00
" Framing " assorted, " 5.00
File, assorted, ⅌ gross....2.75
Auger, assorted, ⅌ gross....6.00
" large, "....7.00 } dis 25&10 %
Patent Auger, Ives'....dis 25&10 %
" " Douglass'....⅌ set $1.25, dis 10 %
" " Swan's....⅌ set $1, dis 20&10 %

Hangers.
Barn Door....dis 65&10 %
Novelty....dis 40 %
Challenge....dis 50 %
Climax (Anti-Friction)....dis 50&10 %
Sterling Improved (Anti-Friction)....dis 70&10 %
Cheritree....dis 20&10 %

Harness Snaps.
Henshaw's....List of 1⅛ changed to 14.00, dis 55 %
Judd's.... " " " 14.00, dis 60 %
Fitch's (Bristol) " 14.00, dis 55 %
Hotchkiss'....dis 10 %
Andrews'....dis 50 %
Sargent's....dis 66⅔&10 %
New York Wire....dis 20&20 %
"German....dis 65 %
Covert....dis 40&10 %

Hatchets.
Isaiah Blood....dis 35 %
Shingling, Nos. 1 2 3....⅌ doz $7.25 $8.00 $8.75
Claw, Nos. 1 2 3....⅌ doz 7.75 8.50 9.25
Lathing, Nos. 1 2 3....⅌ doz 7.50 8.00 8.50
Hunt's....dis 20 &10 %
Shingling, Nos. 1 2 3....⅌ doz $7.25 $8.00 $8.75
Claw, Nos. 1 2 3....⅌ doz 7.75 8.50 9.25
Lathing, Nos. 1 2 3....⅌ doz 7.50 8.25 9.00
Hurd's....dis 45 %
Shingling, Nos. 1 2 3....⅌ doz $8.00 $8.50 $9.00
Claw, Nos. 1 2 3....⅌ doz 9.00 9.50 10.00
Lathing, Nos. 1 2 3....⅌ doz 8.00 8.50 9.00
Simmon's....dis 35 %
Shingling, Nos. 0 1 2 3....⅌ doz $7.50 $8.00 $8.50 $9.00
Claw, Nos. 1 2 3....⅌ doz 9.00 9.50 10.00
Lathing, Nos. 1 2 3....⅌ doz 8.00 8.50 9.00
Broad, Nos. 1 2 3 4....⅌ doz 9.00 10.00 12.00 14.00
" Nos. 5 6 7 8....⅌ doz 16.00 18.00 20.00 22.00
Collins....dis 10 %
Shingling, Nos. 1 2 3....⅌ doz $6.00 $6.50 $7.00
Claw Nos. 1 2 3....⅌ doz 6.50 7.00 7.50
Lathing, Nos. 1 2 3....⅌ doz 6.00 6.50 7.00

Hay Knives.
"Lightning"....⅌ doz $20.00 net
Wadsworth's....dis 33⅓ %

Hinges.
Gate, Western....⅌ doz $6.25, dis 70 %
" N. E....⅌ doz $10.13, dis 70 %
" N. E. Reversible....⅌ doz $10.13, dis 70 %
Gate, Clark's No. 1....⅌ doz $6.00, dis 50&10 %
" N. Y. State....⅌ doz $6.10, dis 70&10 %
" Automatic....⅌ doz $12.50 dis 40 %
" Common Sense....dis 20&10 %
" Seymour's....dis 40&10 %
" Shepard's....No. 10 ⅌ doz $7.00, dis 50&10 %
Rolled Blind Hinges....dis 60&10&10 %
Rolled Plate....dis 60&10 %
Rolled Raised....dis 60&10 %
Wrought Strap and T, list Dec. 20, '77....dis 50&10 %
Plate Hinges / "Providence" { 8, 10 & 12 in. $6.50 ⅌ 100 ℔ / over 12 in. $5.20 ⅌ 100 ℔ }....dis 10 %
Screw Hook and Strap { 8, 10, 12 in., $6.50 ⅌ 100 ℔ / 14 to 36 in., $5.20 ⅌ 100 ℔ } dis 10 %
Heavy Welded Hook { 8 to 12 in., $6.50 ⅌ 100 ℔ / 14 in. & up, 5.20 ⅌ 100 ℔ } dis 10 %
Screw Hook and Eye { ⅞ & 1 in., 10c / ¾ in. 12c / ⅝ in. 14c / ½ in. 16c } dis 35 %

Hoes.—Solid Shank, C. S....⅌ doz $5.25, dis 15 %
Socket....⅌ doz 5.75, dis 15 %
Riveted Shank....⅌ doz 3.25 dis 15 %
Grub....dis 30 %
Planters'....dis 30 @ 35 %
Scovill Pattern....dis 25 @ 30 %
Scovill Pattern, Handled....dis 25 %
Hick's Pat. Solid C. S. Planters'....dis 20&10 @ 30 %
" " " Scovill Pattern dis 20&5 @ 35 %
Winsted & Lane, Planters....dis 25@30 %
" " Scovill Pattern....dis 20@25 %

Hooks.
Bird Cage, Sargent's list....dis 70&10@70&10&10 %
Cotton....dis 50 %
Cotton, Patented (N. Y. Mallet & Handle Wks), dis 30 %
Cotton (Humason & Beckley Mfg. Co.)....dis 40 %
Belt, (new list) ⅌ c....dis 30&10 %
Bench—Hotchkiss' $5.00 ⅌ doz....dis 10 %
" Weston's, No. 1, $10.00; No. 2, $9.00 ⅌ doz dis 25 %
" McGill's, $3.00 ⅌ doz....dis 10 %
" Skinner's, $6.25 per doz....dis 20 %
Clothes Line Sargent's list....dis 70&10 %
" Reading list....dis 50&10&2 %
Ceiling.. } Sargent's list....dis 60&10 %
Harness. } Reading list....dis 50&10&2 %
Coat and Hat, Sargent's list....dis 60&10 %
" " Reading....dis 50&10&2 %
" " T. & S. Mfg. Co's list....dis 25 %
Tassel (T. & S. Mfg. Co.)....dis 40 %
Wrought Staples and Hooks and Staples....dis 70&10 %
" Staples, Stanley's list....dis 40 %
Wire Screw Hooks and Eyes, new list....dis 35&10 %
Grass and Bush....dis 40@45 %
Whiffletree—Patent....dis 45 %
Hooks and Eyes—Malleable Iron....dis 70&10 %
" " Brass....dis 60&10 %

Horse HayForks.
Am. Double Acting, $7 each....dis 30 @ 40 %

Horse Nails.
Nos. 5 6 7 8 9 10
Ausable....⅌ ℔ 30c 27c 25c 24c 23c 22c
" Finished, Polished or Blued... " 31c 28c 26c 25c 24c 23c } dis 30 %
A C.... 60 50 40 26 24 22 21 20 19 18 18 18c
Nos.... 1 2 3 4 5 6 7 8 9 10 11 12 } dis 15 %
Bridgewater Iron Co. / Pointed and Polished } Nos. 5 6 7 8 9 10 / 26c 23c 21c 20c 19c 18c
Nos. 5 6 7 8 9 10
Cortland P't'd & Blued.. 26c 23c 21c 20c 19c 18c
Globe (New list).. Nos. 5 6 7 8 9 10 / 26 23 21 20 19 18c [illegible]
H. P. Pointed and Finished.... 26 23 21 20 19 18 } dis 20 %
North Western Fini'h'd 26 23 21 20 19 18c net
" " Plain 25 22 20 19 18 17c net
National, Pointed and Polished, Pat. Fin. 25 23 22 21 20c net
Putnam Hammer, P't'd 26 23 21 20 19 18c net
Vulcan P't'd & Blued. 26 23 21 20 19 18c 10 %
Horse Shoes.—Burden....⅌ keg $3.62½
R. I. Horse Shoe Co., Perkins' Improved Light, Medium and Heavy....⅌ keg 3.62½
Mule Shoes....⅌ keg 4.62½
Perkins' Snow....⅌ keg 4.12½

Ice Awls, Chisels, &c.
American Ice Chisel....⅌ doz. $6.00 dis 45 %
National....⅌ doz $6.25 dis 20 %
Novelty Ice Breakers....⅌ doz $6.25 dis 20 %
White's Sliding Head Picks....⅌ doz $2.50 dis 40 %
Dunlap's Ring Picks....⅌ doz $3.00, dis 40&10 %
Wood Head Picks, Sargent's ⅌ doz $1.85, dis 60&10&10 %
Iron " ⅌ doz 1.85, dis 60&10&10 %
Ice Mallets Pick in Head....⅌ doz 1.75 net
" Pick in Handle....⅌ doz 3.00 net
Ice Axes, Small, Cast or Malleable....⅌ doz 1.20 net
Kitchen Ice Tongs....⅌ doz 2.25 net
Combination Ice Tools....⅌ doz $2.50 dis 30&10 %

Kettles.
Brass, 7 to 13 inches inclusive....⅌ ℔ 35c net
Brass, larger than 13 inches....⅌ ℔ 40c net
Enameled....dis 60&10 %

Knives.
Ames' Butcher Knives....dis 20 %
" Shoe....dis 15 %
" Bread....⅌ doz $1.50, dis 15 %
Moran's Shoe and Bread Knives....dis 20 %
Hay and Straw—Wadsworth's....dis 33⅓ %
Table and Pocket....See Cutlery

Knobs.
Carriage (Jap'd 80c. ⅌ gross)....dis 60&10 %
Base—Common....dis 30&10 %
Hemacite Door Knobs....New list, dis 35&5 %
Door, Mineral / " Por. Jap'd / " " Plated / " " Por. } Same discounts as Door Locks.
Furniture, Plain....75c gross inch, dis 10 %
" Wood Screws....dis 20 %
Picture (T. & S. Mfg. Co.)....dis 50 %
" Sargent's....dis 60&10&10 %
Hemacite Picture....dis 35 %
Shutter, Porcelain....dis 60 %

Ladles.
Melting—Sargent's....dis 50&10 %
" Reading....dis 35&10&2 %
" Monroe's Patent....⅌ doz $4.00, dis 20 %

Lanterns.
Tubular....No. 0, $8.65; No. 1, $10.15 / With Guards, 35c extra. } net
Hurricane....dis 25 %
Peerless....No 5, ⅌ doz $11.75, dis 10&10 %
Brady's Patent....dis 10&10 %
Ætna....dis 10&10 %
Yankee....dis 10&10 %
De Beque....dis 10&10 %
Police..Small, $7.50; Med., $9.00; Large, $12.00, dis 20&10 %
Convex Reflector....$3.00 ⅌ doz, dis 10 %

Lemon Squeezers.
Porcelain Lined....⅌ doz $4.00@4.50 net
Eureka, Tinned....⅌ doz $8.00, dis 10 %
Dunlap's Improved....⅌ doz $4.00 net
Sammis'....No. 1, $7.00; No. 2, $12.00 ⅌ doz., dis 55 %
Townsend's Patent....$6.00 ⅌ doz., dis 33⅓ %
Lines.—Linen Fish....dis 25&10 %
Cotton Chalk....dis 55 %
Sil. Lake Chalk....Nos. 0, 1, 2, 3, $6.00, $6.50, $7.00, $7.50....dis 15&10 %
Mason's Linen....dis 25&10 %
Wire Clothes, Galvanized....each 20 @ 40c net

Locks and Latches.
Cabinet—Eagle / Gaylord / Bridgeport } Reduction in list of some numbers March 1, 1879....dis 25&2 %
" Barnes & Deitz....dis 30 %
Trunk....dis 25 %
Langstroth & Crane's List Jan. 1, '77.
Round Key, No. 1 to 5....dis 50&10 %
" No. 5½ to 13....dis 40& 10 %
Flat Key....dis 33⅓&10 %
Barnes & Deitz, Flat Key....dis 30 %
Yale Lock Co., Flat Key....dis 40 %
"Shepardson" or "U. S."....dis 35 %
"Felter" or "American"....dis 33⅓ %
Plate....dis 33⅓&5&2 %
F. Many's "Extension Cylinder"....$10.50 ⅌ doz, net
DOOR LOCKS, &C.
Branford....dis
Norwalk....dis
Norwich....dis
Russell & Erwin....(List August, 1879)..dis 65&2 %
Mallory, Wheeler & Co. (List August, 1879) dis 42½&2 %
Reading Hardware Co....dis
Trenton....dis
Continental....dis 33⅓ %
Padlocks—Russell & Erwin / Mallory, Wheeler & Co. / Wm. Wilcox & Co. }....dis 33⅓&5 % and 2 % for cash
" Yale Lock Mfg. Co.'s "Standard"....dis 40 %
" Romer's....dis 30 %
" Conestoga....dis 60 %
" J. H. McWilliams....dis 10 %
" Barnes & Dietz....dis 35 %
" Penn Lock Works....dis 30 %

Mallets.—Hickory and Lignumvitæ....dis 20 %

Meat Cutters.
Dixon's (P. S. & W.) Nos. 1 2 3 4
⅌ doz..$14.00 17.00 19.00 30.00—dis 25 %
Miles' Challenge....Nos. 1 2 3
⅌ doz..$22.00 30.00 40.00—dis 30 %
Perry's Nos. 1 2 3 4 4 g'rd 5 g'rd
Each....$3.00 4.00 5.00 11.00 13.00 36.00 dis 5 &10 %
Woodruff's (P. S. & W.)....Nos. 100 150
⅌ doz. $15.00 18.00—dis 30&10 %
Hales'....Nos. 11 12 13
⅌ doz..$36.65 44.40 56.60..dis 45&10&2 %
Draw Cut....Nos. 5 2 6 8 10
Each..$50.00 75.00 80.00 225.00 400.00—dis 20 %
American....dis 25 %
Nos.... 1 2 3 4 B 5
Each....$5.00 7.00 10.00 25.00 50.00 60.00
Silver & Deming....dis 25 %

Mincing Knives.
Am., 1 blade, $12; 2 blades, $21; 3 blades, $30 per gross....
Lathrop's....dis 25&10 %
Smith's....per doz $1.75, dis 10 %

Molasses Gates.
Stebbins Pattern....dis 57½&10 %
" Genuine....dis 55&10 %
" Tinned Ends....dis 40&10 %
Chase's Hard Metal....dis 30 %
Bush's....dis 20 %
Lincoln's Genuine....dis 60&10 %
Weed's....dis 15 %

Nails....See Trade Report

Nuts and Washers.
Square Nuts....7c off list
Hexagon Nuts....7½c off list
Washers....7c off list

Nut Crackers
Table (Humason & Beckley Mfg. Co.)....dis %
Blake's Pattern....⅌ doz $2.00, dis 10 %

Oakum.
Best....⅌ ℔ 10 c
U. S. Navy....⅌ ℔ 8¾c
Navy....⅌ ℔ 7¾c

Oilers.—Zinc and Tin....dis 55&10 %
Brass and Copper....dis 55 %
Olmsted's....dis 45&10 %
Broughton's....dis 55 %
Malleable (Hammer's)....⅌ doz $5.00, dis 10 %
Prior's Patent or "Paragon," Zinc....dis 55&10 %
" " Brass....dis 55 %
Ox Balls....dis 6&10 %

Pencils.
Faber's Carpenters'....High list, dis 4 &10 %
" Round Gilt....⅌ gross $5.25 net
Dixon's Lead....⅌ gross 4.50 net
" Lumber....⅌ gross 6.75 net

Packing, Steam.
N. Y. Belting and Packing Co....new list net

Picture Nails.
Brass Head, Sargent's List....dis 50&10 %
" T. & S. Mfg. Co....dis 50 %
Porcelain Head, Sargent's List....dis 50&10 %
" " Judd's List....dis 40 %
Porcelain Head, T. & S. Mfg. Co....dis 40 %
Pinking Irons....⅌ doz 75c, net

Plaiting Machines.
Magic....⅌ doz $10.00, net
Astor Plaiting Machine....each $15.00, dis 20 %
Crown Plaiting Machines....dis 25 %
6 in., $8.00, 10 in., $10.00 each

Planes and Plane Irons.
Bench, First Quality....dis 35 % / " Second "....dis 45 % } Extra dis. 10 % for cash in 10 days.
Moulding....dis 35&10 %
Bailey's (Stanley R. & L. Co.) new list Jan. '79.dis 25&10 %
The Stanley (S. R. & L. Co.) " dis 25&10 %
Bailey's "Victor"....dis 25&10 %
Defiance Adjustable, new list....dis 25&10 %
Plane Irons, Butcher's....$5.50 to £
" Buck Bros....$5.00 to £
" Auburn Tool Co.'s....dis 25 %
" Defiance....dis 25&10 %
" Middletown Tool Co....dis 2 &10 %
" Ohio Tool Co....dis 20&10 %
" Spear & Jackson's....$5.00 to £
" Sandusky Tool Co....dis 25&10 %

Pliers and Nippers.
Button's Patent....dis 33⅓ %
Hall's Patent Nippers, No. 1, $15; No. 2, $21 ⅌ doz, dis 25 %
Humason & Beckley Mfg. Co....dis 33⅓ %
Gas Pliers....dis 55 %
Eureka Pliers and Nippers....dis 25
Russell's Parallel....dis 25
P. S. & W. Cast Steel....dis 40 %
" " End Cutting Nippers....dis 25 %
" " Tinners' Cutting Nippers....dis 20 %

Plumbs and Levels.
Disston's....dis 70 %
Stanley R. & L. Co.'s Pat. Adjustable....dis 65&10 %
" " " Non-Adjustable....dis 65& %
Chapin's Patent Adjustable....dis 65&10 %
" Non-Adjustable....dis 65&10 %
Standard Rule Co.'s New Adjustable....dis 60&10 %
" Non-Adjustable....dis 60&10 %
Johnson's Patent Adjustable....dis 60&10 %
Pocket Levels....dis 65&10 %

Post Hole and Tree Augers.
Samson Post Hole Digger....per doz $36.00, dis 20 %
Fletcher Post Hole Augers....⅌ doz 36.00, dis 20 %
Vaughan's Post Hole—
6 in. $23.60; 7, 8 and 9 in. $25 per doz....dis 20 %
Leed's....$5.00 each, dis 45 %
Eureka....⅌ doz $40.00, dis 40 %

Potato Parers, &c.
Bay State....⅌ doz $13.00 dis 10 %
Saratoga "Peeler and Slicer....⅌ doz 7.75 dis 10 %

Pruning Hooks and Shears.
Disston's Combined Pruning Hook and Saw per doz $18.00, dis 20 %
" Pruning Hook.... " 11.50, dis 20 %
Pruning Shears....⅌ doz $4.50@$5.00 net

Pulleys.
Judd's Axle....⅌ doz $0.50, dis 40 %
Hot House and Tackle....dis 70&10 %
Jap'd Screw....dis 70&10 %
Brass Screw....dis 60&10 %
Jap'd Side....dis 70&10 %
" Clothes Line....dis 75&10 %
Hay Fork, Solid Eye, $4.50; Swivel, $5.00, dis 10&10&10 %
" " "Anti-Friction,"....$7.50 dis 20&10 %
" " "F" Common and Pat. Bushed....dis 25 %
" " Tarbox Pat. Iron....dis 35 %
Shade Rack....dis 50 %

Punches.
Belt or Drive....⅌ doz $2.00; 2.25; 2.50, dis 50 %
Bemis & Call Co.'s Cast Steel Drive....dis 40&30 %
" " Springfield Socket....dis 50&10 %
Spring....⅌ doz $7.00, dis 50 %
" Leach's Patent....dis 15 %
Bemis & Call Co.'s Spring and Check....dis 50 %
Solid, Tinners'....⅌ doz $1.44, dis 50 %

Rail.
Sliding Door Wrought Brass....⅌ ℔ 38c dis 25 %
" " Iron, Painted....⅌ foot 9c, dis 70 %
Barn Door, ⅛, ⅜ and ¾ inch....dis 70&10 %
" for N. E. Hangers....dis 70&10 %

Rakes.
Cast Steel....dis 15 %
8 10 12 14 16 teeth.
$5.00 5.75 6.50 7.25 8.00
Malleable....dis 15 %
10 12 14 teeth.
$3.60 4.00 4.40

Razor Straps.
Genuine Emerson....dis 40 %
Badger's Emerson....dis 40 %
Badger's (not Emerson)....dis 25 %
Evans'....dis 40 %
Imitation Emerson....⅌ doz $2.75, dis 40&10 %
Hunt's....dis 40&5 %
Chapman....dis 15 @ 20 %
Saunder's....dis 10 %
Torrey's....dis 25

Rivets.
Iron and Tinned....dis 50 %
In bulk, new list of Jan. 10, 1878....dis 35 %
Copper Rivets and Burs....dis 50 %
Nos.. 7 8 9 10 11 12 13 14 15
⅌ ℔..49c 50c 52c 54c 56c 58c 60c 65c 70c
Tinned Iron Belt Rivets and Burs....dis 35 %
Rivet Sets....dis 50 %

Rods.
Stair....New list, March 1, '79, dis 33⅓ %
" American Patent....dis 40 %

Rollers.
Barn Door, Sargent's list....dis 60&10 %
Novelty....dis 10 %
Acme (Anti-Friction)....dis 50 %

Rope. Manufacturers' Net List July 2, 1879.
Manila....½ inch and larger ⅌ ℔ 13 c
"....⅜ inch ⅌ ℔ 13½c
"....¼ and 5-16 inch ⅌ ℔ 14 c
" Tar'd Rope....⅌ ℔ 12½c
" " Lath Yarn....⅌ ℔ 14 c
" Hay Rope....⅌ ℔ 13 c
Sisal....½ inch and larger ⅌ ℔ 11 c
"....⅜ inch ⅌ ℔ 11½c
"....¼ and 5-16 inch ⅌ ℔ 12 c
" Hay Rope....⅌ ℔ 11 c

Rules. Boxwood Ivory.
Chapin's / Standard / Stanley } dis 70 &10 % / dis 60 &10 %
Stephens.... 65&10 % 50&10 %
Willis, Thrall & Son.... 60&10 % 50&10 %

Sad Irons.
From 4 to 10 lbs....⅌ ℔ 2⅞c net
Self Heating....⅌ doz $6.50 net
" Tailors'....⅌ doz $18.00 net
Gleason's Shield and Toilet....dis 25 %
Enterprise Patent Cold Handle....dis 33⅓ %
Mrs. Pott's Pat. Cold Handle, "Crown"....dis 33⅓ %
Combined Fluter and Sad Iron..per doz $15.00, dis 15 %

Sand Paper.
Gaeder & Adamson's Flint, 00 to 1½..$4.25 ⅌ ream
" " " 2, 2½ & 3. 4.75 ⅌ ream
" " Assorted 4.25 ⅌ ream
" " Star.... 3.25 ⅌ ream
" " Emery..⅌ ream $6.50 @ 11.50 } dis 20 @ 25 %
New England, same list as B. & A. Flint....dis 20 @ 25 %
Gage's....dis 20&5 %

Sash Cord.
Common....⅌ ℔ 16 @ 18½c net
Patent....⅌ ℔ 18c net
Silver Lake Russia Flax....⅌ ℔ 55c, dis 10 %
" White Cotton....⅌ ℔ 55c, dis 10 %
" Drab Cotton....⅌ ℔ 60c, dis 10 %
Raw Hide....dis 25 %
Steel Ribbon....dis 10 %

Sash Locks.
Clark's, No. 1, $10.00; No. 2, $8.00 per gross....dis 50%
Ferguson's....dis 33⅓ %
Walker's....dis 10 %
Hammond's Window Springs....dis 25 %
Northup Window Springs....$9.00 per gross, dis 10 %
The Perfect, Clark & Smith, Plain Jap'd ⅌ gro $10.00 net
" " Por. Knob Jap'd. ⅌ gro 14.00 net
" " Nickel-Plated...⅌ gro 27.00 net
Sash Weights.—Solid Eyes....⅌ ℔ 1¼ @ 1⅜c

Sausage Stuffers or Fillers.
Miles....⅌ doz $20, dis 30 %
Perry....⅌ doz, No. 1, $15; No. 0, $21, dis 30&10 %
Draw Cut No. 4....each $30.00, dis 20 %
Enterprise Mfg. Co....dis 20 %
Silver's....dis 25 %

Saws.
Disston's Circular....dis 35 %
" Mill....dis 35 %
" Cross Cut....dis 25 %
" Hand, Panel, Rip, &c....dis 20 %
Boynton's Lightning, Cross Cuts, new list....dis 30 %
" One-Man, all lengths, "....dis 25 %
" Billet Webs, 30 in....⅌ doz $8.00, dis 30 %
Wheeler & Clemson Mfg. Co.'s Hand....dis 20 %
" " Cross-Cut....dis 35 %
Livingston's Butcher and Kitchen....dis 20 %
Framed Wood—
Nos.... 101 102 103 104 105
Per doz..$10.00 [illegible] 10.00 7.50 6.25 net

Saw Frames.
White, Vermont....⅌ doz $1.35, dis 25 %
Red, Polished and Varnished....⅌ doz $2.00, dis 25 %
Saw Rods....$10 list dis. 10&10 %

Saw Sets.
Boynton's Patent....per doz. $10.00, dis 30 %
Stillman's Genuine....⅌ doz $3.38@$3.50 net
" Imitation....⅌ doz $3.25, dis 35 %
Common Lever....per doz $2.00, dis 25 %
Leach's....No. 0, $8.00; No. 1, $15.00, dis 15 %
Nash's....No. 1, $8.50; No. 2, $5.50, dis 20&10 %
Hammer, Hotchkiss....$5.50, dis 15 %
" Bemis & Call Co.'s New Pat....dis 40&5 %
Bemis & Call Co.'s Lever & Spring Hammer.dis 35&10 %
" " Plate and Cross Cut....dis 20 %
Aiken's Genuine....$13.00, dis 50 %
" Imitation....$7.00, dis 55 %

Hart's Patent Lever ... dis 20 %
Disston's ... dis 20@1

Scales.
Hatch, Counter, No. 171 ... ₱ doz $36. dis 45&10 %
" Tea, No. 181 ... ₱ doz $15.00 dis 55 %
Union Platform ... $6 00. dis 55 %
Fairbanks' ... dis 20&5 %
Howe's ... dis 20&5 %
Chatillon's Grocers' ... dis 40 %
" Eureka ... dis 20 %
Family Universal ... dis 45 %
" Favorite ... dis 40
" Turnbull's ... dis 40 %
Scale Beams, Chatillon's list ... dis 40 %
" Sargent's list ... dis 50&10 %

Scrapers.
Adjustable Box Scraper (S. R. & L. Co.), $6.50 dis 25&10 %
Box, 1 Handle ... ₱ doz $5.00, dis 10 %
" 2 " ... ₱ doz 6.00 dis 10 %
Defiance Box and Ship ... dis 25&10 %
Foot ... dis 70&10 %
Ship (common) ... per doz $3.00 net
" (Providence Tool Co. ... dis 10 %

Screw Drivers.
Douglass Mfg. Co ... dis 35&10 %
Disston's ... dis 12½ %
Disston's Patent Excelsior ... dis 52½ %
Buck Bros ... dis 25 %
Stanley Rule & Level Co., Varnished Hdls. .dis 50&10 %
" " Black Handles ... dis 40&10 %
Sargent & Co.'s ... dis 60&10 %

Screws.
Flat H'd Iron ... dis 55 %
Round Head Iron ... dis 45 %
Flat Head Brass ... dis 45 %
Round Head Brass ... dis 30 %
Brass and Silver Capped ... dis 40 %
Japanned, list of Plain Screws ... dis 40&10 %
Lag or Common Coach ... dis 60&5 %
Coach Patent Gimlet Point, List per 100 ... dis 60 %
Bed ... dis 10@10 %
Machine, Flat Head, Iron, Am. Screw Co ... dis 25 %
" Round Head, Iron, " ... dis %
Bench, Iron ... dis 65&10 %
" Wood, Beech ... ₱ doz $3.00, dis 15 %
" " Hickory ... dis 20&10 %
Hand ... dis 25&10 %
Hand Rail, Sargent's ... dis 70&10 %
" " Humason, Beckley & Co's (low list) dis 40&10 %
Jack (Wilson's) ... dis 35 %
Sash(T. & S. Mfg. Co.) ... dis 25 %

Screw Window Balances.
R. B. Huguin's, Single & Co., ... dis 5 %

Shears and Scissors.
Cast Steel ... dis 80&10 %
" Iron, "American" ... dis 60 %
Seymour's Straight Trimmers ... dis 65 %
" Scissors ... dis 65 %
Pruning ... see Pruning Hooks and Shears.
Barnard's Lamp Trimmers ... ₱ doz $3.75
Tinners' ... dis 20 %
Heinisch Trimmers and Scissors ... dis 60&10 %

Sheaves.
Sliding Door, M. W. & Co., list ... dis 42½ &2 %
" R. & E. list ... dis 05&10&2 %
" Patent Roller ... dis 12½&10 %
" " Hatfield's ... dis 05&10&2 %
" Russell's Anti-Friction ... dis 65&10&2 %
" Moore's Anti-Friction ... dis 45 %
Sliding Shutter, R. & E. list ... dis 50&2 %
" " Sargent's list ... dis 60&10 %
Moore's Anti-Friction (Hanging) ... dis 45 %
Philadelphia Hanging ... dis 40&5&2 %

Shovels and Spades.
Ames, New list, Jan. 1, '79 ... dis 20 %
Hussey, Binns & Co., Patent ... dis 15 %
" " Association List ... dis 20&5 %
Old Colony ... dis 30 %
Remington's (Lowman's Patent) ... dis 30 %
Dunning's Shovels and Scoops ... dis 20&7½ %
B. Rowland's "Regular," ... dis 50&10&5 %
" Patent ... dis 40&5 %
Oxford Patent ... dis 40&5 %

Shovels and Tongs.
Iron and Brass Head, R. & E. list ... dis 50&2&10 %
Polished Steel ... new list, dis 40&5&2&10 %

Slates.
Square Frames, Round Cornered, by case ... dis 70 %
Less than a case ... dis 65&10 %

Spoke Shaves.
Defiance Metallic ... new list, dis 25&10 %
Iron ... dis
Wood ... dis 30 %
Bailey's (Stanley R & L. Co.) new list ... dis 25&10 %

Spoke Trimmers.
Pomey's ... ₱ doz $10.00, dis 40&10 %
Stearn's ... ₱ doz $10.00, dis 40 %
Ives' ... No. 1, $15.00; No. 2, $12.00 ₱ doz, dis 50&10 %
Douglass' ... ₱ doz $9.00, dis 20&10 %

Spoons.
Tinned Iron ... dis 40&5 %
Basting ... dis 40&5 %
Britannia ... dis 65 %
Derby Silver Co ... dis 40&5&5 %
L Boardman's Sons, A1 ... dis 40&5&5 %
F. W. Rogers & Son, A. A ... dis 40&5&5 %
Rogers Cutlery Co ... dis 40&5&5 %
Reed & Barton ... dis 40&5 %
Hall & Elton ... dis 40&5 %
Holmes, Booth & Haydens ... dis 40&5 %
German Silver ... dis 30&10&5 %
Cast Steel, Sil. Plated ... dis 33⅓ %
Diamond Steel (L. Boardman's Sons) ... dis 30&5 %
Tin (P. S. & W.), Teas ... $1.25 ₱ gross, net
" " Tables ... $2.00 ₱ gross, net
Tin Cowles Hdw Co.) ... dis 10 %
" " case lots ... dis 20 %

Stocks and Dies.
'Lightning" Screw Plate ... dis. 10 %

Stone.
Hindostan Stone ... ₱ ℔ 6c } dis 33⅓ &10 %
" Ax Stone ... ₱ ℔ 8c
" Slips ... ₱ ℔ 10c
Sand Stone ... ₱ ℔ 6c, dis 33⅓&10 %
Washita Stone ... No 1, ₱ ℔ 18c net
" " ... No. 2, ₱ ℔ 14c net
" Slips ... No. 1, ₱ ℔ 42c net
Washita Stone (Boyd & Chase) ... No. 1 ₱ ℔ 14c net
Turkey Oil Stone (Boyd & Chase) ... 4 to 8in, $1.00 ₱ ℔, dis 10 %
" Slips " ... $2.50 ₱ ℔, dis 10 %
Lake Superior (Boyd & Chase) ... ₱ ℔ 20c, dis 10&5 %
" Slips " ... ₱ ℔ 45c, dis 10&5 %
Grindstones, Family, Loring's ... dis 10 %

Stove Polish.
Joseph Dixon's ... ₱ gross $6.00, dis 10 %
Gem ... ₱ gross $4.50, dis 5 %
Gold Medal ... ₱ gross $6.00, dis 5 %
"Mirror" ... ₱ gross $6.00, dis 5 %
Ruby ... ₱ gross $3.75, net
Rising Sun ... ₱ gross $5.75, net
Dixon's Plumbago ... ₱ ℔ 8c. net

Squares.
Steel ... dis 50 %; full cases, dis 50&10 % } 2 % cash
Iron ... dis 50 %; full cases, dis 50&10 %
Nickel Plated ... add $2.50 @ $4.00 ₱ doz, net
Try Squares and T Bevels ... dis 50&10 %
Star Try Squares and Bevels ... dis 35 %
Disston's Try Squares and T Bevels ... dis 52½ %
Winterbottom's Try and Mitre ... dis 25&10 %

Tacks, Brads, &c.
List of May, 1878 ... dis 55 %
Tinned Carpet ... dis 55&10 %
Shoe Nails, (new list) ... dis 10 %
Double-Pointed Tacks ... dis 40&5 %

Tap Borers.
Common and Ring ... dis 20&10 %
Ives' Tap Borers ... dis 10&10 %
Enterprise Mfg. Co ... dis 20 %

Tapes, Measuring.
American ... dis 25 %
Spring Tapes ... dis 25&10 %

Thermometers.
Tin Case ... dis 70 %

Tobacco Cutters.
Enterprise Mfg. Co. (Champion) ... dis 20 %
Wood Bottom ... ₱ doz $12.00, dis 40@45 %
All Iron ... ₱ doz $10.50, dis 50&5 %
Nashua Lock Co.'s ... ₱ doz $18.00, dis 50 %

Toe Calks.—Winsted ... ₱ ℔ 10c. dis 10 %

Tinners' Tools and Machines.
Machines (P. S. & W.) ... dis 5@10 %
Tools (P. S. & W.) ... dis 15@20 %

Traps.
Game, Newhouse ... dis 33⅓ %
" Newhouse Pattern ... dis 60&10 %
" Blake's Patent ... dis 40 %
Mouse, Wood, Choker ... ₱ doz holes, 12c
" Round Wire ... ₱ doz $1.50, dis 10 %
" Cage " ... ₱ doz $2.50, dis 10 %
" Catch-em-alive ... ₱ doz $2.75, dis 10 %
Rat, "Decoy" ... per doz $10.00, dis 10 %

Trowels.
Lothrops Brick and Plastering ... dis 25 %
Reed's Brick and Plastering ... dis 25 %
Disston's Brick and Plastering ... dis 20 %
Peace's Plastering ... dis 30 %
Clement & Maynard's ... dis 20 %
Rose's Brick ... dis 15 %
Brades' Brick ... dis 20 %
Worrall's Brick and Plastering ... dis 20 %
Garden ... dis 55 %

Triers.
Butter and Cheese ... dis 25 %

Vises.
Solid Box ... List. of July 1, '79, dis 35 %
" "Crown" (A. H. Hildick) 4 to 100 ℔, 15c dis 20 %
" Peter Wrights ... 15½c
Parallel, Parker's ... dis 20 %
" Wilson's ... dis 50 %
" Howard's ... dis 25&10 %
" Merrill's ... dis 20 %
" Sargent's ... dis 66⅔&10 %
" Trenton ... dis 25 %
" Backus and Union ... dis 25 %
" Fisher & Norris ... dis 15&10 %
" Stevens' ... dis 25 %
" Simpson's Adjustable ... dis 25&10 %
"Family," List ... net
Saw Filers, Bonney's ... ₱ doz $24.00, dis 20&10 %
" Stearn's ... dis 20&10 %
" Hopkins' ... ₱ doz $17.50 dis 10 %
Lowell Hand Vises ... dis 20 %
Richardson's Vise and Anvil ... dis 25 %

Ventilators.
Protective (upper per foot $1.00 } dis %
(lower " 1.50

Washer Cutters.
Smith's Patent ... ₱ doz $12.00 dis 10 %
Johnson's ... ₱ doz $12.00, dis 35 %
Penny's ... ₱ doz $14.00 and $16.00, dis 45 %
Appleton's ... ₱ doz $8.00, dis 20&10 %

Washers.—See Nuts and Washers.

Weather Strips.
Protective Ventilator Co. s ... dis 25 %

Well Wheels.—Revised list ... dis 60&10 %

Wire.
Brass and Copper ... List of July 1, 1878 dis 25@30 %
Bright and Annealed ... Nos. 0 @ 18, dis 55 @ 57½ %
" ... Nos. 19 @ 26, dis 62½ @ 65 %
" ... Nos. 27 @ 36, dis 65 @ 67½ %
Coppered ... Nos. 0 @ 18, dis 50 @ 52½ %
Galvanized, Nos. 0 to 6 ... ₱ ℔ 10c, dis 37½ @ 40 %
" Nos. 7 to 18 ... market list, dis 37½ @ 40 %
Tinned, Nos. 0 to 18 ... dis 42½ @ 47½ %
Cast Steel ... dis 25 @ 30 %
Tinned Broom Wire, Nos. 18 to 25 ... dis 57½ @ 60 %
Annealed Fence, Nos. 8 and 9 ... dis 55 @ 57½ %
" Grape, Nos. 10 to 14 ... dis 55 @ 57½ %
Galvanized Telegraph, Nos. 7 to 9 ... ₱ ℔ 8¼c
" " Nos. 10 and 11 ... ₱ ℔ 9¼c
" " No. 12 ... ₱ ℔ 10c
Fence Staples ... ₱ ℔ 6 @ 6½c
" Staples, Galvanized ... ₱ ℔ 7 @ 7½ c
Stubs Steel Wire ... $7.00 to 8 gold
Japanned Barb Fence ... ₱ ℔ 11½c
Galvanized " ... ₱ ℔ 12½c
Steel Music Wire, Nos. 12 to 27 ... ₱ ℔ $1.00, net
Judd's Picture Wire ... dis 80&20&10 %
Clothes Line Wire, Galvanized ... ₱ coil 30 @ 40c net
Green Wire Cloth, per sq. foot, 3c @ 3¼c ... net

Wrenches.
American Adjustable ... dis 45 %
Baxter's Adjustable "S," ... dis 20 %
" Diagonal ... dis 20 %
Collins & Co.'s ... dis 45 %
Coes' Genuine ... dis 60 %
" "Mechanics" ... dis 60&10 %
" Pattern, Malleable ... dis 75&10 %
Girard Standard ... dis 60&10 %
Girard Agl ... 70&10 %
Davis' Patent Duplex ... new list, dis 25 %
Bemis & Call's Patent Combination ... dis 25 %
" " Merrick's Pattern ... dis 40&5 %
" " Briggs' Pattern ... dis 35 %
" " Cylinder or Gas Pipe ... dis 25&30 %
Van Wagoner & Williams' Basin ... per doz $4.50
Aiken Pocket (Bright) ... $6.00, dis 55&10 %
The Favorite Pocket (Bright) ... per doz $8, dis 60 %
Webster's Pat. Combination ... dis 35 %

Wringers. Per doz.
Peerless, No. 0, no Cogs ... 51.00
" No. 1, " ... 54.00
" No. 2½, with Cogs ... 60.00
" No. 2, " ... 63.00
" No. 3, " ... 71.00
" No. 4, " ... 95.00
Unique, No. 0 ... 51.00
" No. 1 ... 54.00
Universal, XX No. 2½ ... 60.00
" " No. 2, ... 63.00
" " No. 1½ ... 71.00
" " No. 1 ... 93.00
" " No. 8 ... each, 12.00
" " No. 12 ... " 20.00
" " No. 18 ... " 25.00
" " No. 22 ... " 32.00
Crown No. 2 ... 54.00
" No. 2½ ... 63.00
" No. 3 ... 69.00
Eureka, No. 1 ... 57.00
Novelty, No. 10, with Cog Wheels ... 60.00
" No. 2, " ... 63.00
Excelsior, No. A, with Folding Bench ... 78.00
" No. E, for Set Tubs ... 66.00
Keystone No. 1, Wood Frame, no Gear ... 54.00
" No. 2, Iron " ... 54.00
" No. 10, Wood " Common Gear ... 60.00

Stamped Tinware.—New List Dec. 1, 1878.
Common Stamped Ware ... dis 25 %
Stamped Deep and Retinned Ware ... dis 25 %

METALS.

IRON.—DUTY: Bars, 1 to 1½c. ₱ ℔; Sheet, Band Hoop and Scroll, 1½ to 1⅝c. ₱ ℔; provided, that none of the above Iron shall pay a less rate of duty than 35 per cent. Pig, $7 ₱ ton; Polished Sheet, 3c. ₱ ℔; Wrought Scrap, $8 ₱ ton; Cast Scrap, $6 per ton. Railroad 70c. ₱ 100 ℔s. Boiler and Plate, 1⅝c. ₱ ℔.

Pig Iron—AMERICAN Nominal.
Foundry No. 1 ... ₱ ton $28.00 @ 30.00
" No. 2 ... ₱ ton 26.00 @ 28.00
Gray Forge ... ₱ ton 27.00 @

SCOTCH.
Eglinton ... nominal, ₱ ton 24.00 @ 25.00
Coltness ... ₱ ton 28.00 @
Glengarnock ... ₱ ton 27.00 @ 28.00

Rails.
Iron ... ₱ ton $40.00 @ 42.00
Steel ... ₱ ton 49.00 @ 50.00
Old Rails ... ₱ ton 28.00 @ 30.00

Scrap.
Wrought Scrap, from yard ... ₱ ton, nom. 32.50 @

Bar Iron, from Store.
Common Iron:
⅝ to 2 in. round and square ... } ₱ ℔ 2.8c
1 to 6 in. x⅜ to 1 in ...
Refined Iron:
⅝ to 2 in. round and square ... } ₱ ℔ 3.0c
1 to 6 in. x⅜ to 1 in ...
1 to 6 in. x¼ and 5-16 ... ₱ ℔ 3.2c
Rods—⅝ and 11-16 round and square ... ₱ ℔ 3.1c
Bands—1 to 6x3-16 to No. 12 ... ₱ ℔ 3.3c
Norway Bars ... 6c

Sheet Iron.

	Common American	R. G. American.
Nos. 10 to 20	₱ ℔ 4 c	5
21 to 24	₱ ℔ 4¼c	5
25 to 26	₱ ℔ 4½c	5¼
27	₱ ℔ 4¾c	5¾
28	₱ ℔ 4⅞c	5⅞

Galvanized, 14 to 20, R. B. ₱ ℔ 9 c; 2d qual, ₱ ℔ 8 c
" 21 to 24, " ₱ ℔ 9½c; " ₱ ℔ 8½c
" 25 to 26, " ₱ ℔ 10½c; " ₱ ℔ 9½c
" 27 " ₱ ℔ 11 c; " ₱ ℔ 10 c
" 28 " ₱ ℔ 11½c; " ₱ ℔ 10½c
Patent Planished ... ₱ ℔ A. 11c; B. 10c
Russia ... ₱ ℔ Nos. 8 to 14 ... @13c
American Cold Rolled ... ₱ ℔ 5¼@5½c

COPPER.—DUTY: Pig, Bar and Ingot, 5c; Old Copper 4c ℔; ₱ Manufactured (including all article of which Copper is a component of chief value), 45 % ad valorem.
American Ingot ... ₱ ℔ See Trade Report.

SHEATHING, BRAZIERS' COPPER, BOLTS, &C.
Braziers' Copper, ordinary sizes, over 16 oz., ₱ sq. ft ... ₱ ℔ 28c
Braziers' Copper, ordinary sizes, 16 oz. and over 12 oz., ₱ sq. ft ... ₱ ℔ 29c
Braziers Copper 10 oz and 12 oz., ₱ sq. ft ... ₱ ℔ 31c
" " Lighter than 10 oz. ₱ sq. ft ... ₱ ℔ 30c
Circles less than 84 in. in diameter ... ₱ ℔ 33c
Circles 84 in. diameter and over ... ₱ ℔ 33c
Segment and Pattern Sheets ... ₱ ℔ 29c
Locomotive Fire Box Sheets ... ₱ ℔ 22c
Sheathing Copper, over 12 oz. ₱ sq. ft ... ₱ ℔ 27c
Bolt Copper ... ₱ ℔ 28c
Copper Bottoms ... ₱ ℔ 28c
No Copper is Sheathing except 14x48 inches and not to exceed 34 oz. to the sq. ft.

TINNING.
14x48, by the case ... ₱ sheet 6c
14x48, less than case ... ₱ sheet 8c
For tinning both sides, double the above amount
O'NEILL'S PATENT PLANISHED COPPER.—Net.
14x48.
14 and 16 oz. and heavier ... ₱ ℔ 34c By the case. ₱ ℔ 30c
12 oz. and lighter ... ₱ ℔ 34c " " ₱ ℔ 33c
Boiler Sizes.
7 in., 14x52. 8 in., 14x56. 9 in., 14x60.
14 and 16 oz. and heavier. ₱ ℔ 33c By the case. ₱ ℔ 32c
(And all sizes not over 20 in. wide.)
30x60.
14 and 16 oz. and heavier ... ₱ ℔ 35c
12 oz ... ₱ ℔ 38c

Brass.
Brown & Sharp's Gauge the Standard for Metal; Old English Gauge the Standard for Wire.
BRASS MANUFACTURERS' PRICE LIST.—dis nominal. July 1, 1878.
Cash prices for Roll and Sheet Brass. For less quantity than 100 ℔s. add 3c ₱ ℔.

HIGH BRASS.
All Nos. not thinner than to No. 28, wider than 2 in., not wider than 14 in ... 25c
All Nos. to No. 28, inclusive, and widths over 14 to 20 in., inclusive ... 30c
All Nos. to No. 28, inclusive, and widths over 20 to 30 in., inclusive ... 33c
½c. ₱ ℔ advance on each No. above Nos. 28 to 38, inclusive.
All Brass thinner than No. 38 is Platers' Brass, at ... 48c
Sheets 24x48, and all sheets cut to particular sizes and lengths under 30 in., in width wider than 2 in. 33c
Printers' Rules ... 40c
Sheets wider than 30 in. and under 40 in ... 42c
" 40 in. and over ... 45c
Circular Sheets, in diam. from 4 in. to 14, inclusive. 35c
" " over 14 " 20, " ... 40c
" " " 20 " 30, " ... 44c
" " " 30 " 40, " ... 50c
" " " 40 in ... 54c

LOW BRASS.
4c ₱ ℔ more than High Brass,
Gilding Metal, 8c ₱ ℔ more than High Brass.
Platers' or Gold Metal { In Bars ... 43c
{ Sawed ... 46c
{ Planed or Polished ... 49c

FOR SLITTING.
Metal in width 2 in. to ¼ in. to No. 28, inclusive, 1c. ₱ ℔ advance.
Metal, in width 2 in to 1 in., thinner than No. 28, 2c. ₱ ℔ advance.
Metal, in width 1 in. to ¼ thinner than No. 28, 3c ₱ ℔ advance.
Metal, in width ½ in. to ¼, inclusive, not thinner than No. 28, 2c. ₱ ℔ advance.
Metal, in width ½ in. to ¼ thinner than No. 28, 5c. ₱ ℔ advance.
Metal, ¼ in. in width and less, 10c. ₱ ℔ advance.
Any of the above widths cut to particular lengths, add 7c. ₱ ℔.

GERMAN SILVER MARKET METAL AND WIRE.

	Market Metal.	Wire.
4 per cent., 12 inch, to No. 26	$0.52	$0.70
6 " " "	.56	.76
10 " " "	.64	.88
15 " " "	.74	1.03
18 " " "	.80	1.12

German Silver Sheets over 12in. wide and weighing more than 10 ℔s., $2.00 ₱ ℔.
Advance 2c. for each additional inch in width above 12 in., and 2c. ₱ ℔ on each No. thinner than Nos. 26 to 36, inclusive
All German Silver thinner than No. 36 is Platers, at 50c ₱ ℔ additional.
German Silver Scrap one-half less than net price of 12 in. Market Metal. German Silver Turnings, Filings and Chips, half the price of Scrap.

BRASS AND COPPER WIRE.

	High Brass.	Low Brass.	Gild'g and Copper.
No. 0 to 20	$0.28	$0.32	$0.38
No. 2	.31	.35	.41
No. 2	.32	.36	.42
No. 23	.33	.37	.43
No. 24	.35	.39	.45
No. 25	.38	.42	.48
No. 26	.40	.44	.50
No. 27	.43	.47	.53
No. 28	.47	.51	.58
No. 29	.50	.54	.61
No. 30	.53	.57	.67
No. 31	.57	.61	.73
No. 32	.61	.65	.79
No. 33	.65	.69	.88
No. 34	.69	.73	.98

Spring Wire 2c ₱ ℔ advance.
Flat, Square and Half Round Wire 5c ₱ ℔ advance on Round Wire.
Fancy Wire not less than 10c ₱ ℔ advance of Round Wire.
Brass Rods, No. 8 and larger not less than 2 feet lengths, 33c.
Wire straightened and cut, smaller than No. 8, and not less than 2 feet lengths, 38c.
Wire and Rods less than 2 feet lengths, special rates
Twelve cents per ℔ extra for spooling on 1 ℔ spools.

MISCELLANEOUS.
Common Plain Brass Pail Ears ... $0.36
Brass Door Rail ... .38

SCRAP.—net.
High Brass Scrap ... .11c
Low " ... .13c
Gilding ... .14c
Turnings, Filings and Chips half the price of Scrap.
Terms—Net cash. Interest to be added after thirty days.

TUBING.—dis 10 % ₱ ℔
Plain to No. 20 inclusive, above ¼ in. to 3 in ... $0.38
" above 3 in ... .48
Nos. 21, 22, 23, two cents advance on List for each Number.
Nos. 24, 25, 26, four cents advance on List for each Number.
Above No. 26, special rates.
Plain, ¼ inch ... .65
" 3-16 " ... 1.05
" ⅛ " ... 1.55
All Mandrel Drawn Tubes, 5 cents advance on List Prices.
Fancy Tubing to No. 20 ... .45c
English, Scotch and Extra Patterns Fancy Tubing to No. 20 ... .50
Tubing Sawed or Cut 2 to 4 feet long, 2 cents advance on List.
Add to 2 cents ½ cent for each additional cutting under 2 feet.
All Mandrel Drawn Tubes under ⅜ in., 25 cents per pound advance.

ZINC TUBING.—net.
Plain ... .22
Fancy ... .28
Scotch and Extra Patterns ... .32

GERMAN SILVER TUBING.—dis 10 %
4 Per cent ... .75
6 " ... .85
9 " ... 1.00
12 " ... 1.15
15 " ... 1.20
16 " ... 1.35
18 " ... 1.45
20 " ... 1.55

STEEL.—DUTY: Bars, Ingots, Sheets and Coils, valued at 7 cents ₱ ℔., or under, 2¼ cents; over, 7 cents, and not above 11, 3 cents ₱ ℔; over 11, 3½ cents ₱ ℔, and 10 % ad val. Railway Bars, 1¼ cents ₱ ℔. Railway Bars, in part Steel, 1 cent ₱ ℔. Provided, that Metal cemented, cast or made from Iron by the Bessemer or pneumatic process, of whatever form or description, shall be classed as

American Cast Steel.
Tool ... 15c
Spring ... 7c
Homogeneous ... 12½c
Boiler Plate ... 8c
Tire ... 4½c
Machinery (round and square) ... 9c
File ... 9c
Sheet ... 11 @ 16c
Saw Plate, mill and mulay ... 14 @ 16½c
" gang and X cut ... 13 @ 14c
" circular as to size ... 18 @ 90c

English Steel.—
" Best Cast ... ₱ ℔ 15½c
" Extra Cast ... ₱ ℔ 16½c
" Round Machinery, Cast ... ₱ ℔ 10c
" Swaged, Cast ... ₱ ℔ 18c
" Best Double Shear ... ₱ ℔ 15½c
" Blister, 1st quality ... ₱ ℔ 13c
German Steel, Best ... ₱ ℔ 11c
" 2d quality ... ₱ ℔ 10c
" 3d quality ... ₱ ℔ 9c
Sheet Cast Steel, 1st quality ... ₱ ℔ 15½c
" 2d quality ... ₱ ℔ 14½c
" 3d quality ... ₱ ℔ 12½c

ANTIMONY ... 16 to 15⅛
LEAD.—DUTY Pig $2 ₱ 100 ℔s; old Lead, 1½c ℔ ₱ Pipe and Sheet, 2½c ₱ ℔.
American ... 4⅛c @ 4¾c
Bar ... 6c dis 10 %
Pipe ... 6½c, dis 10 %
Tin Lined Pipe ... 13c, dis 10 %
Sheet ... 6c, dis 10 %
Shot ... Drop 6½c, Buck, 7½, dis 10 %
Chilled Shot ... 8c, dis 10 %

BABBITT METAL.
N. P. U ... ₱ ℔ 6 @ 70
A 20c; B, 16c; C, 12c.

TIN.—DUTY: Plates, Sheets, Tagger and Terne, 1.1c ₱ ℔; Electro-galvanized Plates, 2c ₱ ℔; Manufactures of, not enumerated, 35 per cent. ad. val. Bars, Block and Pigs free. Banca, subject to duty of 10 per cent
Banca ... ₱ ℔ 20c
Straits ... ₱ ℔ 18
English ... ₱ ℔ 17½&18

TIN PLATES.
I C 10x14 } Prime Charcoal ... $6.50 @ 6.75
14x20 }
C 12x12 " ... 6.75 @ 7.0
X 10x14 } Charcoal ... 8.50 @ 8.75
14x20 }
I X 12x12 ... 8.50 @ 8.75
D C 12½x17 ... 5.75 @ 6.00
D X 12½x17 ... 8.00 @
For each additional X add ... 2.00

COKE TIN PLATE.

	Best.	2d quality.	Ordinary.
I C 10x14 } I C 14x20 }	$5.75	5.50	5.25 @ 5.37½
I C 12x12	6.00	5.75	5.25 @ 5.50

TERNE PLATE.

	Prime Char.	2d qual.	Coke.
I C 14x20	@ 6.00	5.50 @ 5.75	5.25 @ 5.50
I X 14x20	@ 7.75	...	...
I C 20x28	12.00 @ 12.25	11.50 @ 11.75	10.00 @ 11.50
I X 20x28	@ 16.00	...	...
I C 20x200	@ 18.75	...	...
I C 14x20 M. F. Brand			$7.50

SOLDER ... No. 1, 10c @ 11c; No. 2, 9½c
SPELTER—DUTY: in Pigs, Bars and Plates, $1 ₱ 100 ℔s.
American, cash ... 6c
Bergen Port from Lehigh Ore ... 9c
Lehigh, on spot ... 9c
ZINC.—DUTY: Pig or Block, 1.50 ₱ 100 ℔s. Sheet, 2½c ₱ ℔.
Sheet, Cask ... @ 7¾
" Open ... @ 8½

Paper Stock, Old Metals, &c

(Dealer's Selling Price.)
Canvas linen ... 4 @
White cotton, new ... 5½ @
" " No. 2 ... 2¾ @
White linen rags, No. 1 ... 4 @
" " No. 2 ... 2 @ 2¼
Seconds ... 1½ @ 1¾
Mixed woolens ... 2¾ @ 3¼
Soft woolens ... 12 @
Gunny bagging ... 3⅜ @
Jute Butts ... 3 @ 3¼
Kentucky bagging ... 4½ @
Waste paper and scraps ... @ 1
Rope cuttings ... 1½ @ 3
Kentucky bale rope ... 4 @ 4¼
Grass rope ... 2⅝ @ 3
Tarred shaking ... 1½ @
Hard White Shavings, No. 1 ... 3½ @
Soft " " No. 1 ... 3 @
White Shavings, No. 2 ... 2¼ @
Mixed Shavings, part white ... 2¼ @
Imperfections, No. 2, best folded sheets ... 3¼ @
" No. 1, Heavy Stock ... 3½ @
Book Stock ... 2¾ @
" " Heavy ... 3 @
" " Light ... 1½ @
Newspapers ... 1¾ @ 1⅞
Prints ... 1¼ @
Pure Manilas ... 1¾ @ 2¼
Bogus Manilas and Hardwares ... ⅝ @ 1
Commons ... 40 @
Binders' Board Cuttings ... 80 @
Straw Board Cuttings ... 60 @
Woolen Tailor Clips ... 13 @ 14
Satinet " ... 2 @ 2¼

Old Metal.
Copper, heavy ... 14 @ 14½
Copper Bottoms ... 12 12½
Yellow Metal ... 10 @
Brass, light ... 8½ @
" heavy ... 10½ @
Heavy Composition ... 13 @ 13½
Old Lead, solid ... 3⅝ @ 3¾
Tea Lead ... 3⅛ @ 3⅜
Zinc ... 3¼ @ 3½
Pewter No 1 ... 12 @ 13
" No. 2 ... 8¼ @ 9
Wrought Iron ... per ton $21 00 @ 22.00
Machinery Iron ... per ton $13.00 @ 14.00
Light Iron ... per ton 13 00 @ 13.50
Stove Plate ... per ton 12.00
Grate Bars ... per ton 5.00

Paints, Oils, &c.

Paints.
Black Lamp, Coach Painters ... ₱ ℔ 20c
" " Ordinary 6c
" Ivory Drop, fair ... 12 @ 16c
" " best ... 23c
Black Paint, in oil ... kegs, 8c asst'd cans, 11c
Blue, Prussian, fair to best ... 40 @ 55c
" " in oil ... 21 @ 28c
Blue Chinese dry ... 80c
" Ultramarine ... 18 @ 30c
Brown, Spanish ... 1¼c
" Van Dyke ... 10@12c
Carmine, 40 ... combination price
Green, Chrome ... 15 @ 23c
" " in oil ... 14 @ 18 @ 25c
" Paris ... good, 25c; best, 30c
" " in oil ... " 30c; " 45c
Iron Paint, Bright Red ... ₱ ℔ 2¼c
" Red ... ₱ ℔ 2c
" Brown ... ₱ ℔ 1½c
" Purple ... ₱ ℔ 3c
" Ground in Oil, Bright Red ... ₱ ℔ 5½c
" " " Red ... ₱ ℔ 5c
" " " Brown ... ₱ ℔ 4½c
" " " Purple ... ₱ ℔ 6c
Mineral Paints ... 1¼ @ 4c
Orange Mineral ... 10c
Red Lead, American ... 6c
" " English ... 9½@ gold
" Venetian (N. C.) dry ... $1.65 @ $1.70
" " in oil ... asst'd cans, 11c; kegs, 8c
" Indian dry ... 9 @ 12c
Rose Pink ... 10 @ 13c
Sienna, American, Raw ... 4c
" Burnt ... 4½c
" " in oil ... 10 @ 16 @ 20c
" Raw ... 11 @ 15 @ 25c
Umber, Burnt ... 4 @ 8c
" " in oil ... 9 @ 12 @ 16c
" Raw ... 3½ @ 7½c
" " in oil ... 10 @ 16 @ 18c
Vermillion, Chinese ... 90c
" English ... 55 @ 57½c
" Trieste ... 1.10c
" American, Common ... 15c
White Lead, American, pure dry ... 6 to 7c
" " " in oil ... 7 to 7½c
White, Paris, English, prime ... in bbls. 2 @ 2½c
Yellow Ochre, French ... $1.75
" " " in oil ... asst'd cans, 11c; kegs, 8c
" " Vermont ... in casks, 1½c
Yellow Chrome ... 17 @ 27c
" " in oil ... 14 @ 18 @ 25c
Zinc White, American No. 1, dry ... 7c
" " No. 1, in oil ... 9c
" French (Paris) ... 8 @ 10c
" " in oil ... @ 10c

Oils.
Linseed, Raw, in casks and bbls ... ₱ gal. 63c & 64c
" Boiled. " " ... 68c & 69c
Bleached Whale ... ₱ gal. 47c
" Sperm ... ₱ gal. 92c
" Elephant ... 51c
Signal ... 42c
Prime Lard ... 52c
No. 1 ... 47c
West Virginia ... 12c @ 18c
Drilling ... 38c
Empire Cylinder ... 64c
Miners' Oil ... 30 to 38c
Fish Oil, pressed ... 33c
Neatsfoot ... 65c
Tallow ... 60c
Machinery ... 40c
Engine ... 50c

Sundries.
Asphaltum ... 06
Benzine ... ₱ gal. 60
Chalk ... 10
" Block ... 40
Dryer, Patent, Am'n ... asst cans, 10½c; keg, 9c
Frostings ... 500
Glue, White ... 33 @ 42
" Sheet ... 20
Glaziers' Points, Zinc ... 30
Gum, Copal ... 350
" Damar ... 250
" Shellac, English ... [illegible]
" " dark ... [illegible]
Litharge, English ... 9c @ 10
Mineral Wool ... ₱ ℔ 1¼ @ 1½c
Pumice Stone, selected Lumps ... 4 @ 5c
" powdered ... 2½c
Putty, in bladders ... 2½c
" in bulk ... c
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Spirits Turpentine ... 36c
Whiting Spanish ... 5⁄8c

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6 x 8 to 10 x 15	$ 8.00	$ 6.75	$ 6.25	$ 5.75
11 x 14 to 16 x 24	8.75	8.00	7.50	7.00
18 x 22 to 20 x 30	11.25	10.50	9.75	8.75
15 x 36 to 24 x 30	12.75	11.50	10.00	
26 x 28 to 24 x 36	13.50	12.25	11.25	
26 x 36 to 26 x 44	14.75	13.75	11.75	
26 x 46 to 30 x 50	16.25	15.00	13.00	
30 x 52 to 30 x 54	17.25	16.00	13.50	
30 x 56 to 34 x 56	18.75	16.75	15.00	
34 x 58 to 34 x 60	19.50	18.00	16.00	
36 x 60 to 40 x 60	21.00	19.50	18.00	

Double Thick.—Discount 70&10 %

SIZES.	1st.	2d.	3d.	4th.
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11 x 14 to 16 x 24	14.75	13.75	12.75	11.75
18 x 22 to 20 x 30	19.00	17.75	16.00	
15 x 36 to 24 x 30	21.50	19.25	16.50	
26 x 28 to 24 x 36	23.00	20.75	18.25	
26 x 36 to 26 x 44	25.00	23.00	19.25	
26 x 46 to 30 x 50	27.00	25.00	21.25	
30 x 52 to 30 x 54	28.50	26.00	22.25	
30 x 56 to 34 x 56	30.00	27.75	24.75	
34 x 58 to 34 x 60	31.75	30.00	27.00	
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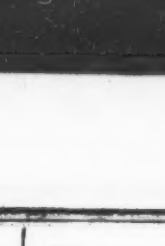

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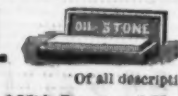
OIL 

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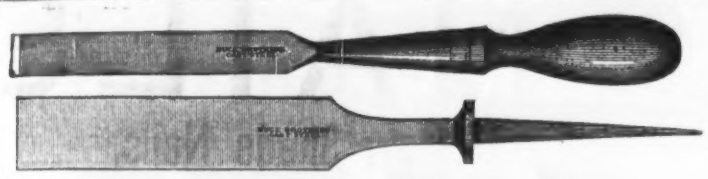

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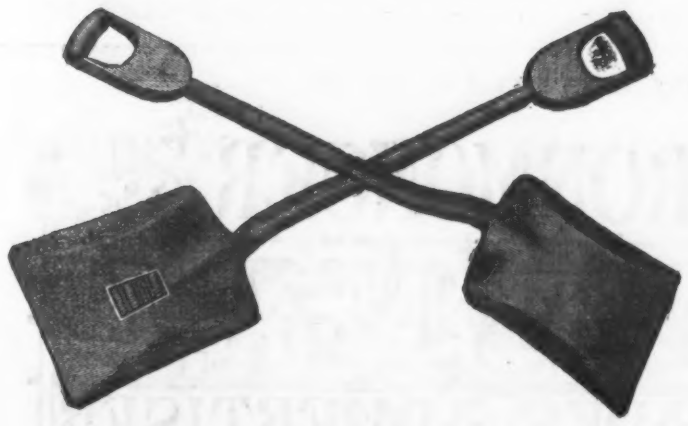

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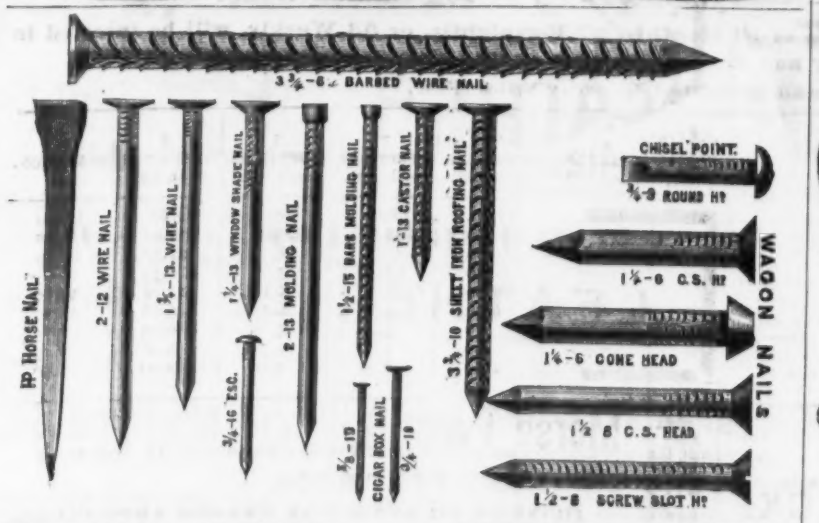

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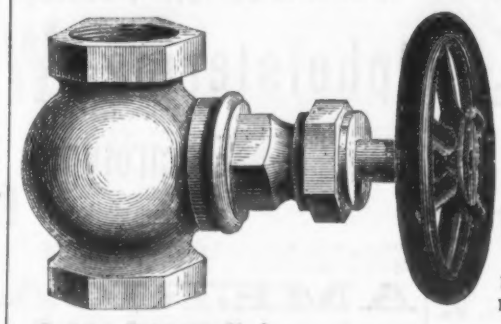

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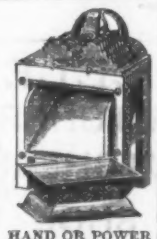

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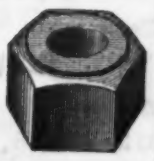

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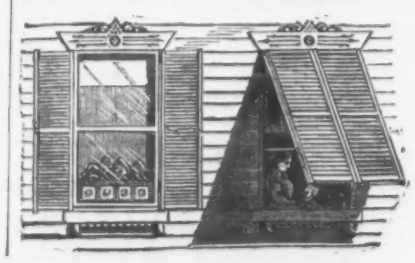

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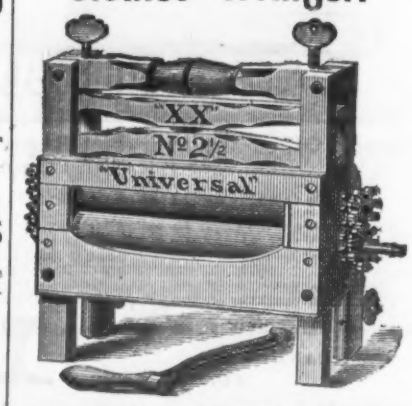

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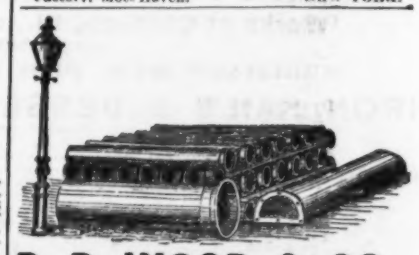

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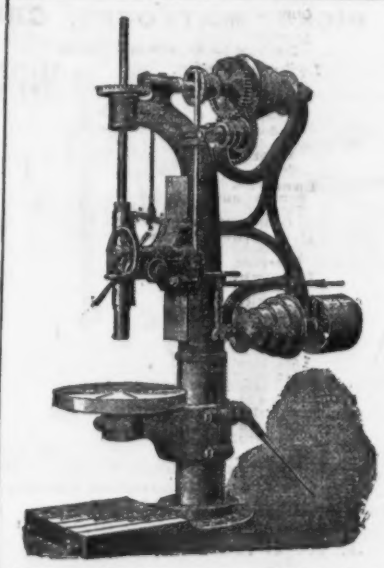

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Red Indian ..... " 8.00 @ 8.50 net
Red Chieftain, bevelled ..... " 8.50 @ 9.00 net
Crown Prince ..... " 8.50 @ 9.50 net

Augers and Auger Bits.
Bates' Nut Augers ..... dis 50 @ 55 %
Cook's Augers ..... dis 50 @ 50&5 %
Watrous' Ship Augers ..... dis 15 %
Benjamin Pierce Auger Bits ..... dis 40 %
Griswold Auger Bits ..... dis 50 @ 55 %
Cook's " " ..... dis 50 @ 50&5 %
Jennings' " " ..... dis 1"&10 %
Bonney's Pat. Hol. Augers, list $48 ℔ doz ..dis 25&10 %
Stearns' Pat. Hol. Augers, list $48 ℔ doz ....dis 25&10

Balances.
Light and Common ..... dis 25&10 %

Bells.
Bevin Bros. Mfg. Co. Light Hand Bells ...dis 70 @ 75 %
Swiss Pattern Hand Bells ..... dis 50 @ 50&10 %
Connell's Door Bells ..... dis 45&10 %
Gt. Western & Kentucky Cow, new list ...dis 50&10 %

Belt and Rivet Clippers.
Chambers' No. 1, for ⅜ bolt ..... each, $7.50)
" No. 2, " ½ " ..... " 9.00) dis 25 %
" No. 3, " ⅝ " ..... " 12.00)

Boring Machines.
Upright, with Augers ..... List $9.00 dis 40&10 %
" without Augers ..... " 5.50 dis 40&10 %
Angular, with Augers ..... " 11.00 dis 40&10 %
" without Augers ..... " 7.00 dis 40&10 %

Bolts.—Eastern Carriage Bolts ..... dis 75&3 %, cash
Philadelphia " ..... dis 70 %
Stanley, Wrought Shutter ..... dis 50 %

Braces.—Barber's ..... dis 40&5 %
Backus ..... dis 50 @ 50&10 %
Spoffard ..... dis 50&5 %
American Ball ..... dis 35 %

Butts.—Cast Fast Joint, Narrow ..... dis 50&10 %
" " Broad ..... dis 55&10 %
Cast Loose Joint, Narrow ..... dis 60&10 %
" " Broad ..... dis 60&10 %
" Acorn, Loose Pin ..... dis 65&10 %
" " Jap'd ..... dis 65&10 %
" Mayer's Loose Joint ..... dis 65&10 %
Wrought Loose Pin ..... dis 50 %
" Table Hinges and Back Flaps ..... dis 45 %
" Narrow, Fast ..... dis 50 %
" Loose Joint ..... dis 50 %

Blind Butts.
Parker ..... dis 75&10 %
Clark ..... dis 75&10 %
Shepard ..... dis 70&10 %
Lull & Porter ..... dis 66⅔&10 %
Huffer's ..... dis 33⅓& @ 33⅓&10 %

Chains.—German Halter and Coil ....dis 40 @ 40&10 %
Galvanized Pump ..... ℔ lb 100 net
Best Proof Coil Chain—English.

℔ lb.	11/16	7/8	1	1 1/16	1 1/8	1 1/4	7c gold
	3-16	¼	5-16	⅜	7-16	½	⅝ in.

Chisels.—Socket Framing ..... dis 65, 5&10 %
Socket Firmer ..... dis 65, 5&10 %
Butcher's ..... $5.00 to £ gold

Casters.—Bed ..... dis 40&10 %
Plate ..... dis 40&10 %

Coffee Mills.—Box and Side ..... dis 25 %
Enterprise ..... dis 20 %

Cutlery.—Walden Pocket ..... dis 35&5 % cash
Landers, Frary & Clark, J. Russell & Co., Lamson & Goodnow Mfg. Co. and Meriden Cutlery Co., Manufacturers' prices net.

Drawing Knives.
Hart Mfg. Co.'s ..... dis 65, 5&10 %
Adjustable Handle ..... dis 20 %

Fry Pans.
Tinned ..... dis 50&10 @ 60 %

℔ doz.	$3.00	4.00	4.50	5.00	5.50	6.50	7.50	9.00	10.00
No.	0	1	2	3	4	5	6	7	8

Burnished ..... dis 60&5 %

℔ doz.	$3.00	3.75	4.25	4.75	5.25	6.00	7.00	8.00	9.00
Fo.	0	1	2	3	4	5	6	7	8

Files.
Nicholson ..... dis 35 %
Disston ..... dis 35 %
Butcher ..... $4.50 £ gold
Spencer ..... $4.50 @ 4.75 £ gold

Fluting Machines.
Eagle—3¼ in. roll ..... each, $1.62½ net
" —3½ in. roll ..... " 2.12½ net
Crown—4½ in. roll ..... " 2.62½ net
" —5 in. roll ..... " 3.00 net
" —8 in. roll ..... " 5.00 net
Geneva Fluter ..... dis 20 %
Favorite com. Fluter & Sad Iron, ℔ doz $20 dis 25&10 %

Hammers.
Yerkes & Plumb's ..... dis 20 %

Hatchets.
Yerkes & Plumb ..... dis 33⅓ %
Hunt ..... dis 25 %

Hinges.
Strap and T ..... dis 50&10 %

Horse Nails.

Nos.	4	6	7	8	9	10
Ausable	30	27	24	24	23	22
" Pol'ed & P't'd and Blued and Pointed	31	28	26	25	24	23
Globe ..... Net list.	26	23	21	20	19	18
Clinton	22	20	19	18	17	
" " Polished & Pointed	25	21	20	19	18	

Southern, all sizes ..... ℔ lb 14c. net
Discount on Ausable and Clinton, 20 %; Globe, net.

Locks and Knobs.
Branford ..... dis 25&2 % 0 sh
Gaylord Cabinet ..... dis 33⅓& 2 % cash
American Padlocks ..... dis 50&10 %
Scandinavian Padlocks ..... dis 50&10 %

℔ doz.	$5.00	5.50	6.50	7.50	8.50	10.00	12.50	} dis 50 %
No.	47	51	59	60	61	62	63	
℔ doz.	$18.00	26.00	32.00	} dis 50 %				
No.	64	65	66					

Lanterns.
Square Candle and Oil ..... ℔ doz $2.75 @ 3.00
Tubular ..... No. 0, $10.50; No. 1, $12.50 ℔ doz net
Guards, 10 cents extra per doz. net.

Lawn Mowers.—Pennsylvania ..... dis 30&10 %
Philadelphia ..... dis 30&10 %
Excelsior ..... dis 30&10 %

Lawn and Garden Pumps.
Holland Patent ..... List $5.00 dis 20 %

Mattocks.
Long and Short Cutter ..... new list 40 %
Pennsylvania Pattern ..... per doz $9 50 @ 10.00 net

Molasses Gates.
Enterprise Mfg. Co.'s Measuring Faucets ..... dis 20 %
Stebbins' Gates ..... dis 57½&10 %
Lincoln's " ..... dis 57½&10 %
Landers, Frary & Clark's Petroleum ..... dis 20&10 %
Brass Liquor Cocks ..... d'n 45 %
Cork Lined " ..... dis 62 @ 65&10 %

Meat Cutters.—Dixon's ..... dis 25 @ 30 %
Woodruff ..... dis 25 @ 30 %
Stowe ..... dis 25 @ 30 %
Hale's ..... new list, dis 14, 10&2 cash
American ..... dis 25 %
Seuffers ..... dis 25 @ 30 %
Enterprise Stuffers ..... dis 20 %

Planes.—Ohio Tool Co ..... dis 35 %
Scioto ..... dis 45 % } 10 % cash
Auburn ..... dis 35 % } in 10 days.
New York Tool Co ..... dis 45 %
Bailey ..... dis 25&10 %
Plane Irons.—Ohio Tool Co ..... dis 20&10 %
Butcher's ..... gold £, $4.50

Plumbs and Levels.
Stanley's Adjustable ..... dis 65&10 %
" " Non-Adjustable ..... dis 65&10 %

Picks.—New list ..... dis 40 %
Pumps.—Bickford ..... $7.00, dis 20&10 %
Rules.—Stanley Boxwood ..... dis 70&10 %
Stanley Ivory ..... dis 60&10 %
Steelyards.—Hart's Pattern ..... dis 60&10

℔ doz.	$14.50	17.75	21 00	26.50	31 00	35.50
Lbs.	50	100	150	200	250	300

American Pattern ..... dis 25 @ 25&10 %

℔ doz.	$5 50	7.00	9.00	10.00	11.00	12.00
Lbs.	50	100	150	200	250	300

English Pattern ..... d s 20 @ 25 %

℔ doz.	$7.00	8.67	10.67	12.67	14.67	16 67
Lbs	50	100	150	200	250	300

Squares.
Steel and Iron ..... dis 50 %; full case, dis 50&10 %
Try Squares, Stanley ..... dis 50&10 %
Disston's Try Squares ..... dis 50&10 %
Scythes.—Golden Clipper, Damascus Blade, Boxed and Sharpened ..... ℔ doz $8.00 net
Clipper No. 10, Bronzed Blade, Boxed and Sharpened ..... ℔ doz $7.50 net
Clipper No. 5, Painted Red, Boxed and Sharpened ..... ℔ doz $7.25 net
Saws.—Disston's Hand, Panel and Rip ..... dis 20 %
Disston's Circular ..... dis 30 %
" Cross-Cut No. 2, Plain Tooth..℔ ft., 45c net
" " Patent Tooth ..... ℔ ft., 45c net
" " Champion Tooth ..... ℔ ft., 35c net
Shovels and Spades.
Rowland ..... dis 50 %
Ames & Sons, new list ..... dis 20 %
Sad Irons.—4 to 10 lbs ..... ℔ lb 30
Mrs. Potts' Patent ..... dis 33⅓ %
Stone.—Arkansas Oil Stone ..... ℔ lb $2.00 net
Washita Extra ..... ℔ lb 35c } dis
" No 1 ..... " 20c } 10 %
" No. 2 ..... " 16½c }
" Slips ..... " 45c
" Axe ..... " 20c
Turkey Oil Stone No. 1 ..... ℔ lb 16½c net
" " No. 2 ..... " 16c net
" Axe Stone ..... " 25c net
Hindostan Oil Stone No. 1 ..... ℔ lb 4c @ 4½c net
" Axe Stone ..... " 5c @ 5½c net
Screws.
Flat Head Iron ..... dis 55 %
" Brass ..... dis 45 %
Round Head Brass ..... dis 45 %
" Iron ..... dis 30 %
Spoons.
Plated ..... dis 40 @ 40&5 %
German Silver ..... dis 30&10 %
Britannia, Boardman's ..... dis 65 %
" Parker's ..... dis 65 %
Tinned ..... dis 15 @ 20 %
" by case ..... dis 20 %
Springs.—Torrey ..... ℔ doz $2.10 net
Philadelphia ....5 in. $5.00; 8 in., $7.00 ℔ doz. dis 25 %
Chatfield ..... No. 1, $3.50; 2, $4.00; 3, $6.00 ℔ doz net
Gem Coil No. 1, Large Jap'd ..... ℔ doz $3.50)
" No. 2, Medium Jap'd ..... " 2.50) dis
" No. 3, Small Jap'd ..... " 2.02)
Stocks and Dies. ..... dis 10&5 %
Stove Polish.—Gem ..... ℔ gross, $4.50, dis 5 %
Dixon ..... " 6.00, dis 5 %
Onyx ..... " $4.00 @ 4.25 net
Tacks, Brads, &c. ..... dis 50&10 %
Shoe Nails—
4-8 and larger, 90; 3½-8, 95c ℔ lb ..New list, net
Double Pointed Tacks ..... dis 40&5 %
Traps.
Genuine Oneida—Newhouse ..... dis 33⅓& %
Im. Oneida—Newhouse list, first qual ..... dis 60 %
Vises.—Solid Box, Trenton new list ..... dis 35 %
Wrenches.—Agricultural—
℔ doz 10 in., $3.60; 12 in., $5.40 net; case dis 5 %
Coes' Genuine ..... dis 60 %
" Pat. Wro't Bar ..... dis 60&10 %
" " Mall. Bar ..... dis 75&10 %
Taft's " Wro't Bar ..... dis 75 @ 75&10 %
Philada. Tool Co., Duplex ..... dis 25 %
Wire.
Bright or Ann'd, No. 0 to 18 ..... dis 55 @ 57½ %
" " No. 19 to 26 ..... dis 62½ @ 65 %
" " No. 27 to 36 ..... dis 65 @ 67½ %
Coppered, 0 to 18 ..... dis 50 @ 52½ %
Tinned Broom Wire ..... dis 55 %
Galvanized, No. 7 to 18 ..... Market List, dis 30 %
Wringers.—Novelty No. 10 ..... ℔ doz $60.00 net
Novelty No. 2 ..... " 63.00 net
Universal No. 2½ ..... " 60.00 net
" No. 2 ..... " 63.00 net
Peerless, No. 2½ ..... " 60.00 net
" No. 2 ..... " 63.00 net

PITTSBURGH.

Merchant Iron.

Terms.—Note or acceptance at 60 days, with current rate of exchange on New York, or a discount of 2 per cent. for cash, if remitted within 10 days from date of invoice.

Flat Bar.

1½ to 4 by ⅛ to 1 inch.	2.50
4¼ to 6 by ¼ to 1 "	2.60
1¾ to 6 by 1¼ to 1½ "	2.90
1¾ and 2½ by ⅜ to ¾ "	2.40
1 and 1¼ by ⅜ to ½ "	2.70
⅝, ¾ and ⅞ by ⅜ to ⅝ inch	2.90

Heavy Bands.

3½ to 6 by ⅛ and 5-16 inch	2.70
1½ to 3¼ by ⅛ and 5-16 "	2.70
1 to 1⅝ by ⅛ and 5-16 "	2.80
⅝ to ⅞ by ⅛ and 5-16 "	3.00
⅝ and ⅞ by ⅛ and 5-16 "	3.50

Light Bands.

3 to 6 by ⅛ to 3-16	2.30
3 to 6 by No. 11 and No. 12	3.00
1½ to 2¾ by ⅛ to 3-16	3.00
1½ to 2¾ by No. 11 and No. 12	3.20
1 to 1⅝ by ⅛ to 3-16	3.20
1 to 1⅝ by No. 11 and No. 12	3.40
⅝ and ⅞ by ⅛ to 3-16	3.50
⅝ and ⅞ by No. 11 and No. 12	3.70
⅝ and ⅞ by ⅛ to 3-16	4.00
⅝ and ⅞ by No. 11 and No. 12	4.20

Hoop Iron.

⅜ and 9-16, Nos.	13 to 16	5.20
⅜ and 11-16, "	13 to 16	4.70
⅞ and 13-16, "	13 to 16	4.20
1 and 1⅛, "	13 to 13	3.80
1¼ to 2, "	13 to 15	3.40
⅜ and 9-16, "	17 to 20	4.50
⅜ and 11-16, "	17 to 20	4.00
⅞ and 13-16, "	17 to 20	4.50
1 and 1⅛, "	16 to 19	4.10
1¼ to 2, "	16 to 18	3.60
2¼ to 3½, "	13 to 15	3.50

7-100 ℔ lb extra for each gauge lighter than above indicated.

Rounds and Squares.

1 to 1⅛	2.50	⅝ to 9-16 ..... 2.70
2 to 2⅜	2.70	⅝ to 7-16 ..... 2.90
2⅜ to 3¼	3.00	⅜ 3.10
3⅜ to 4	3.50	5-16 ..... 3.30
4¼ to 5	4.00	¼ 5.50
⅝ to ⅞	2.60	3-16 ..... 5.50

Oval Iron.

¼ to 2	2.90	⅝	3.30
⅝ to ¾	3.10	⅜	3.70

Half Oval and Half Round.

¼ to 2 inch	3.20	¼ inch	4.00
⅝ to ¾ "	3.70	⅜ "	5.50

Horse Shoe.

⅝ to 1¼ by 5-16 to ⅞ inch 3.50
Wagon Box Iron 4.00
Juniata 30 ℔ lb over American.

Sheet Iron.

	Common.	Charcoal.	Juniata.
No. 10 to 14	3.30	4.80	6.30
No. 15 to 17	3.50	4.00	6.40
No. 18 to 21	3.80	4.30	6.80
No. 22 to 24	4.00	5.50	7.70
No. 25 & 26	4.20	5.70	7.20
No. 27	4.40	5.90	7.40
No. 28	4.60	6.30	7.50

All sheets No. 18 and lighter, over 30 inches wide, not less than 2-10c extra.

Tank Iron.

3-16 to ½ in. thick 3.30
Plow Slabs 3.50
" Wings 3.80

Coal Screen Iron.

1¾ by ⅝ by 5-16 ..... 3.00 | 1 by ⅝ by 5-16 ..... 3.50

Angle Iron.

2¼, 3, 3¼ and 4 inch 3.30
1¼, 1¾, 2 and 2¼ " 3.30
1¼ inch 3.50
1 " 3.80
1¼ by 1 inch, for Plow Handles 3.60
1¼ by ¼ " " 3.60
1⅛ by ¼ " " 3.70

T Rail.

8 lbs. to the yard	2.90	20 lbs. to the yard	2.80
12 " "	2.80	28 " "	2.80
16 " "	2.80	40 " "	2.80

Cast Chairs and Splice Joints for 12, 15 and 20 lb. Rail, 40c each; 28 and 40 lb. Rail, 50c each.
3½ by ⅝ and ⅛ Spikes for 20 and 28 lb. Rail 3.70
2½ and 3 by ¾ " " 12 and 16 lb. Rail 4.00
2½ by 5-16 " " 8 lb. Rail 4.10

Flat Rail's.—Punched and Countersunk.

1¾ to 2 by ⅛ to ¼ inch 3.00
1¾ by ⅜ and 7-16 inch 3.20
1¾ by ⅜, 7-16 and ½ inch 3.50

Juniata Nail Rods 6.50
Norway " 8.00
Guard Iron, 7x1x1/8, and 7x1x1/4 ..... 5.50
" 9x1x9-16, and 7x1x¾ 6.00
Drag Bars 5.30
Dropper Bars 4.00
Cylinder and Landside Iron 3.20
Plow Beam Iron 3.00

Wood's Patent Planished Sheet.

1st quality (A) ..... 10½c | 2d quality (B) 9½c

Galvanized Iron—American.

Nos. 14 to 20	12c	No. 27	15c
Nos. 21 to 24	13c	No. 28	16c
Nos. 25 and 26	14c	No. 29	18c

Common and imperfect Juniata, 50 % off. Discount, 40&10 %.

Roofing Iron, Corrugated or Crimped.

Galvanized Common.		Black.	
No. 20	7c net cash	No. 20	3.8c
No. 21 & 22	7.50 "	Nos. 21 & 22	4.00

Bridge Iron.
Carnegie Bros. & Co.'s list.
Beams and Channels.

Solid Wrought Iron Beams, 3 to 10¼ in. x 30 ft. ℔ lb 3¼c
" " " " 12 in. by 25 ft. " 3¼c
" " " " 15 in. by 25 ft. " 3¼c
Deck Beams, 7 to 9 in. by 30 ft. " 3¼c
Channel Bars, 1¼ to 10 in. by 30 ft. " 3.35c
" " 12 in by 30 ft. " 3.35c

Tee Iron.

1 in. x 1 in. to 5 in. x 3 in. ℔ lb 3¼c

Angle Iron.

Equal Sided, 1x1 to 12x12x1¼ in. ℔ lb 3.1c
" 2x2 to 4x4 " 3.0c
Unequal Sided, 2x1¾ to 6x4 " 3.0c
Square Root Angles, 2x2 to 3½x3½ " 3.0c
Star Iron, 1¼x1¼ to 4x4 " 3.1c
Sash Iron, 1¼x1¼x3-16 " 3¼c
Miscellaneous Shapes, various shapes ... ℔ lb, 3.1 to 4.0c
Special prices for large lots.

Nails.

Brads and Fencing.

10d to 60d	$2.35	4d and 5d	$3.10
8d and 9d	2.60	3d	3.85
6d and 7d	2.85	2d	5.10

Barrel.

¾ in.	6.35	1¼ in.	4.10
⅞ "	5.35	1⅛ "	3.85
1 "	4.85	1¼ "	3.35
		1½ "	3.10

Finishing.

1 in.	7.35	1⅛ to 1¼ in.	4.35
1¼ "	6.35	2 in.	4.10
1⅜ "	4.60	2½ "	3.85
		3 "	3.6.

Casing and Box.

10d to 30d	3.10	6d	3.60
8d	3.35	4d	3.85

Fine Blued.

4d	4.10	3d	4.85
		3d	5.35
		2d	6.10

Lining.

⅞ in.	6.85	¾ in.	8.35

Clinch—All sizes 4.10
Cut Spikes—All sizes 2.60
Boat Spikes—Cut 3.10

Slating.

5d	3.35	3d	4.10
4d	3.35	2d	5.35

Tobacco.

10d	2.85	8d	3.10
		6d to 7d	3.35

Each half keg 10 cents extra.

Terms.—Note or acceptance at 60 days; or a discount of 2 per cent. for cash, if remitted within 10 days from date of invoice. An abatement of 10 cents per keg allowed upon orders of 200 kegs or over.

Steel.

Square, Flat and Octagon Tool Steel.

⅜ to 2 in.	12c	7-32 and 4⅛ 5 in.	15c
5-16 and 2⅛ to 3 in.	13c	3-16 and 5⅛ to 6 in.	19c
¼ and 3⅛ to 4 in.	14c	5-32 in.	23c

Single and Double Shear Nailers—Same as Tool.
Knife, Tup, Die, Mill Pick, Drill—Ordinary sizes 12c

Machinery Steel—Round.

⅜ to 2 in.	7c	7-32 and 4⅛ to 5 in.	10c
5-16 and 2⅛ to 3 in.	8c	3-16 and 5⅛ to 6 in.	13c
¼ and 3⅛ to 4 in.	9c	5-32 in.	18c

Cast Spring Steel.

1 to 4x¼ to ⅜ in.	6c	1⅛ to 3x5-32 to 3-16 in.	7c
		⅜ to 1⅜x5-32 to 3-16 in.	8c

Agricultural Steels.

Solid Cast Steel Plow, 4 to 16 by 3-16 to ⅜ in. ..... 6 c
"Iron Center Plow," 4 to 16x3-16 to ⅜ in. ..... 7 c
"Iron Back Plow," 4 to 16x3-16 to ⅜ in. 7½c
Soft Steel Center Plow, 4 to 16x3-16 to ⅜ in. ..... 9 c
Landside and Cultivator, C. S., ⅜ in. thick 8½c
Circular Plow Coulters, 5-32 to ¼ in. thick ..... 10 c
Reaper and Scythe ..... 12 c
Fork and Hoe ..... 6 c
Horse Rake Teeth, tol ength ..... 7 c
Finger Bar 7½c
Cutter Bars, C. S. 7½c
" " German Spring Steel 6½c
Cornstalk Cutter beveled to length ..... 7 c
Planters' Hoe, C. S. ..... 8 c
Hoe, C. S. 6½c

Sheet Steels.

German, 10 to 16 g ..... 7c | Common C'st, 17 to 20 g..9c
" 17 to 20 g ..... 10c | Best Cast, 10 to 16 g.....12c
Common C'st, 10 to 16 g.. 8c | " 17 to 20 g.....13c

Rolls and Castings.

Furnace, Floor and Straightening Plates 1¾c
Housings and Castings not otherwise specified 2¼c
Guide Plates 2¾c
Spindles and coupling boxes 1¾c
Sand Rolls and Pinions, large size 1¾c
" small size 2¼c
Pipe Mill Castings ..... 3 c
Rolling Mill Castings under 50 lbs ..... 4 c
Spur and Bevel Wheels, large ..... 3 c
" " small ..... 3 c
Pulleys up to 30 inches ..... 4 c
" over 30 inches ..... 4 c
Engine Castings, light 3½c
" " heavy 3¼c

Chilled Rolls.

6 to 7 in. diam.,	7 to 20 in. long	5	c
8 to 15 in. "	8 to 40 in. "	4	c
15 to 24 in. "	15 to 72 in. "	4	c
24 to 31 in. "	72 to 108 in. "	4	c

Horse Shoes, Etc.—In 100 keg lots.
Juniata Horse Shoes ..... per keg. $3.50
" Mule " ..... " 4.50
" "Roadster" pattern ..... " 3.75
Steel Toe Calks ..... per 7½c lb.
Thistlewood & Co.'s Self-Sharpening Horse Shoes ..... per keg, $5.25
Thistlewood & Co.'s Self-Sharpening Snow Shoes ..... " 5.50
Toe Calks ..... per lb. 8c

White and Red Lead.
White Lead in Oil, Assorted Kegs (all sizes) 7½c
" " 25 ℔ Tin Pails, 100 ℔ Cases ..... 8 c
" " 12½ ℔ Tin " " 8½c
Red Lead ..... in kegs, 6¼c; in barrels, 6 c
Orange Mineral ..... " 8½c; " 8 c
Litharge ..... " 6¼c; " 6 c
Dry White Lead, less than 500 lbs., 7½c; over 500 lbs. 6¾c
White Lead in Oil in lots of less than 500 lbs., ½c additional.
Terms: Note at sixty days, or if paid within 15 days from date of invoice, a discount of 1½ per cent. will be allowed, but not otherwise.

Window Glass.
Per Box of 50 Feet.—Discount 75 %.

Single Strength.

Size.	AA.	A.	B.	C.
6 x 8 to 10 x 15	$7.50	$6.75	$6.25	$5.75
11 x 14 to 16 x 24	8.50	7.75	7.25	6.50
18 x 22 to 20 x 30	10.25	9.75	8.75	7.75
15 x 36 to 24 x 30	12.25	10.75	9.00	
26 x 28 to 24 x 36	13.00	11.50	9.75	
26 x 36 to 26 x 44	14.50	13.25	10.75	
26 x 46 to 30 x 50	15.00	14.00	11.25	
30 x 52 to 30 x 54				
30 x 56 to 34 x 56				
34 x 58 to 34 x 60				
36 x 60 to 40 x 60				
Double Strength.				
6 x 8 to 10 x 15	12.00	11.00	10.00	25
11 x 14 to 16 x 24	13.75	12.50	11.75	10.50
18 x 22 to 20 x 30	17.25	15.75	14.00	
15 x 36 to 24 x 30	19.75	17.25	14.50	
26 x 28 to 24 x 36	21.00	18.50	15.75	
26 x 36 to 26 x 44	23.25	21.25	17.25	
26 x 46 to 30 x 50	24.00	22.50	18.00	
30 x 52 to 30 x 54	25.75	23.25	19.25	
30 x 56 to 34 x 56	27.75	25.00	21.75	
34 x 58 to 34 x 60	29.25	27.75	24.00	
36 x 60 to 40 x 60	33.25	30.00	27.75	

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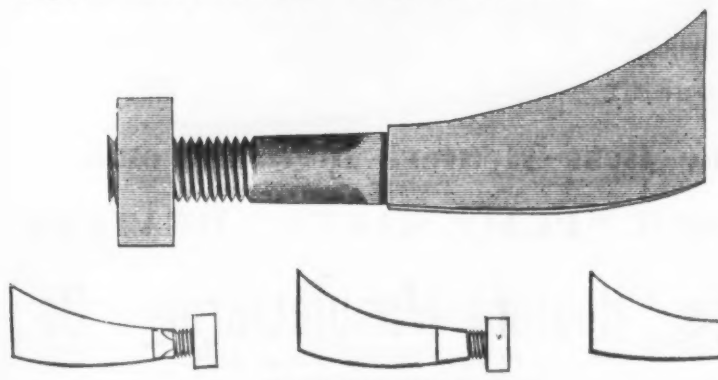

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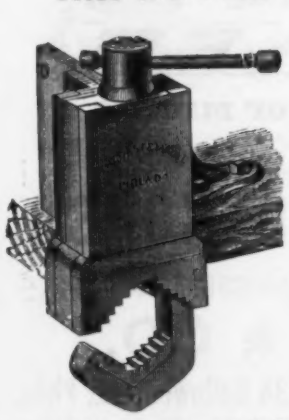

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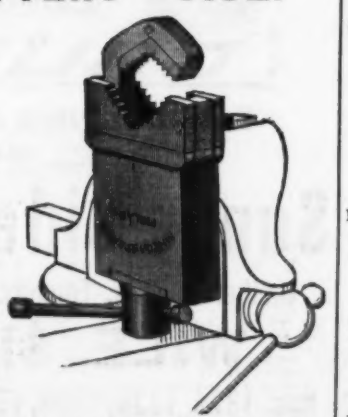

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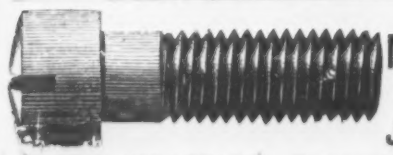

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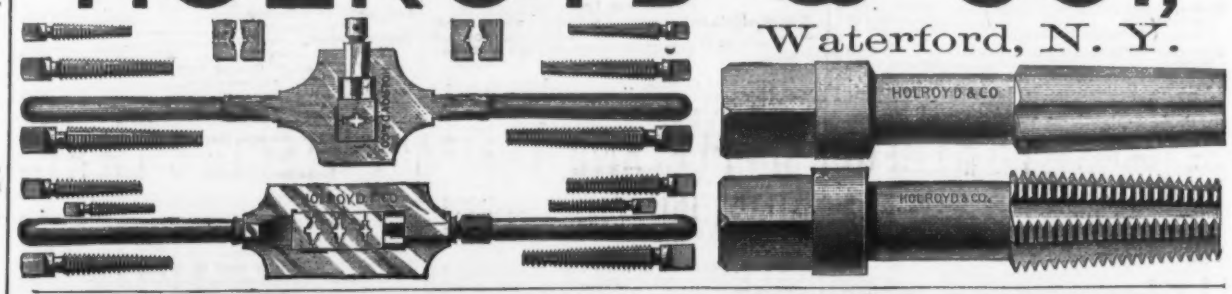

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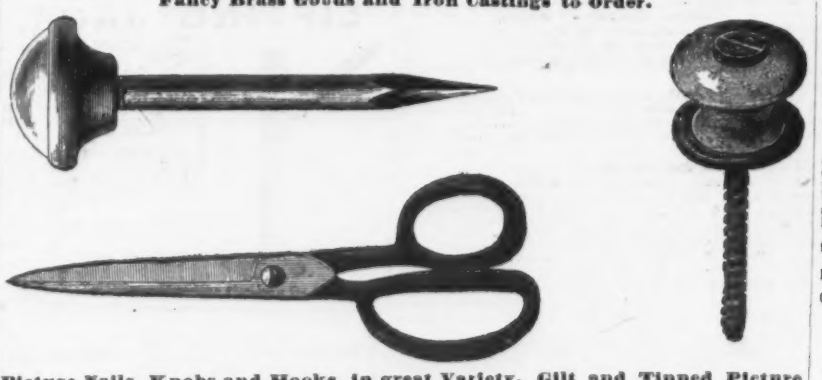

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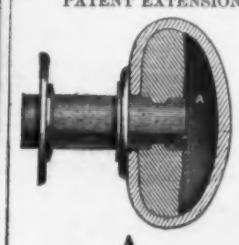

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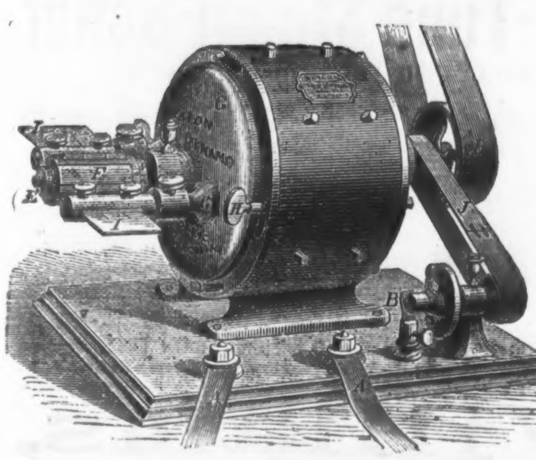

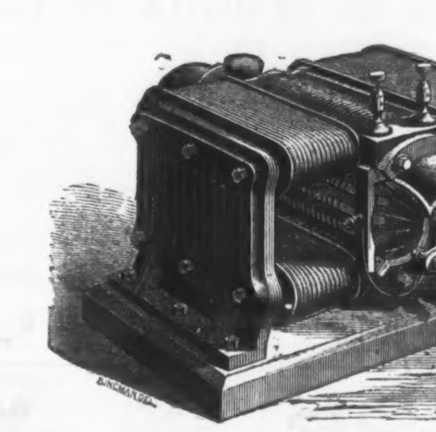

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" Silvered ".....dis 65&10 %
" Boston Finish.....dis 75&10 %
Union Spiral Spring.....dis 25 %
Carriage Jacks.
"Climax," No. 1.....⅌ doz $18.00
" No. 1½..... " 15.00
" No. 2..... " 12.00
"Universal".....dis 25 %
" No. 1.....each, $2.00
" No. 2..... " 3.00
" No. 3..... " 5.00
" No. 4..... " 6.00
" No. 5..... " 6.50
Cartridges.—U. S. Cartridge Co.....dis 60&10 %
Cards.—Watson's make Horse and Curry.dis 33⅓&10 %
Cotton.....dis 25&10 %
Wool.....dis 25&10 %
Casters.—Bed and Table.....dis 45&10 %
Chain.—Traces 6½, 10, 4, straight.....⅌ pair 40c
" 6½, 10, 4, twisted.....⅌ pair 45c
" 7, 12, 2, ".....⅌ pair 75c
Coil 3-16.....⅌ ℔ 11c
" ¼.....⅌ ℔ 8 c
" 5-16.....⅌ ℔ 7½c
" ⅜.....⅌ ℔ 7 c
" 7-16.....⅌ ℔ 6c
" ½.....⅌ ℔ 6c
Chalk.—White, Carpenter's.....⅌ gross 55c
Red, Carpenter's.....⅌ gross 75c
Blue, ".....⅌ gross 90c
Chisels.—Hart, Bliven & Mead, Framing.....dis 70 %
Underhill, Framing.....dis 20 %
Buck's Shank, Framing.....dis 30 %
Clothes Line.—
Galvanized Wire, 100 feet each.....⅌ doz $4.00
Coal Hods.—"Dover."—Galvanized.....dis 22 %
Japanned.....dis 25 %
Copper Rivets.....dis 50 %
Cocks.—Brass, L. F. & C.....dis 45 %
Cordage.—Manila, usual trade dis 1c.....⅌ ℔ 13 c
Jute.....⅌ ℔ 9c
Cow Ties.....dis 35 %
No. 30, 3 ft. No. 6 Wire, with toggle.....⅌ doz $3.00
No. 35, 3 ft. " " with snap.....⅌ doz 3.80
No. 40, 3½ ft. " " with toggle.....⅌ doz 3.90
No. 45, 3½ ft. " " with snap.....⅌ doz 4.10
No. 50, 4 ft. No. 4 " with toggle.....⅌ doz 4.50
No. 55, 4 ft. " " with snap.....⅌ doz 4.75
No. 60, 4½ ft. " 3 " with toggle.....⅌ doz 5.38
No. 65, 4½ ft. " " with snap.....⅌ doz 5.62
Crow-Bars.—Cast Steel.....⅌ ℔ 8c
Iron, Steel Pointed.....⅌ ℔ 5½c
Cutlery.—Pocket, American Shear Co.'s.....dis 40 %
Butcher Knives, "Woods," Lap Bolster, Square Handle.....dis 33⅓ %
Steak Knives.....dis 20 %
Lap Bolster, Oval Handle.....dis 25 %
Sticking.....dis 33⅓ %
Skinning.....dis 33⅓ %
Butcher, Common Round Handle, "Woods".....dis 25 %
Shoe Knives, "Woods".....dis 10 %
Dividers.—Cook's.....dis 25 %
Dog Collars.....dis 20 %
Dog Muzzles.—Automatic.....dis 15 %
Door Springs.—Torrey's Rod.....⅌ doz $1.75
Gem Coil.....dis 20 %
Crown.....⅌ doz $1.25
Warners.....⅌ doz $2.25
Door Stops.—"Thurston's".....dis 50 %
Drawer Knobs.—"Thurston's".....dis 50 %
Drills.—Morse Bitt Stock.....dis 25 %
Morse Straight Shank.....dis 20 %
Emery.—Wellington Mills.....⅌ ℔ 10c
Alden's.....⅌ ℔ 6c
E amelled Ware.
Standard Mfg. Co. Kettles.....dis 60 %
" Sauce Pans.....dis 40 %
Felloe Plates.—Wrought.....⅌ ℔ 7c
Files.—Madden & Cockayne.....dis 35 %
American File Co.....dis 40 %
Nicholson ".....dis 35 %
Fluting Machines.
Knox, with 6 inch rolls.....⅌ doz $56.00
Geneva.....⅌ doz 13.50
Rochester.....⅌ doz 12.00
"Princess".....⅌ doz 24.00
Forks. W. C. & Co., Manure.....dis 50&10 %
Gimlet Bitts.
Genuine German, No. 125, 1-32 to 8-32, per doz $1.00
Pierce's.....per doz 75c
Glass Cutters.
Combination Glass Cutter and Knife Sharpener.....⅌ doz $1.00
Grub Hoes.—K. P. & Co.'s No. 2.....⅌ doz 7.50
Hammers.—Maydole's.....dis 15 %
Hammond's.....dis 20 %
Hangers & Rollers.—Anti-Friction.....dis 60&10 %
Climax.....dis 50&10 %
Novelty.....dis 40 %
Common.....dis 45&10 %
Hand Screws.....dis 20 %
Hatchets.—Dis. 15 %
Underhill.....dis 25 %
Hay Knives.—Lightning.....⅌ doz $18.00
Hinges.—Strap and T (new list).....dis 50&10 %
Providence Plate.....⅌ ℔ 4c
Wrought Screw Hook.....⅌ ℔ 4c
Hoes.—W. C. & Co.'s.....dis 50&10 %
Hooks and Staples.—Brewers'.....dis 50 %
Horse Nails. No. 6 7 8 9
National Finished..... .23 .21 .20 .19....dis 25 %
Putnam Pointed..... .23 .21 .20 .19.....10 %
Horse Nails.—Bridgewater.....dis 25 %
No. 6, 23; No. 7, 21; No. 8, 20; No. 9, 19.
Knobs.—"Norwalk."
Mineral.....⅌ doz $0.65
Porcelain, Japanned Mtg.....⅌ doz .80
" Por. Rose Nickel Mtg.....⅌ doz 2.50
" Plated " ".....⅌ doz 2.50
Silver Glass.....⅌ doz 8.00
" Bell Pulls.....⅌ doz 6.00
Lanterns.—Tubulars, No. 0.....⅌ doz 8.65
Beacon Light.....⅌ doz 8.00
Railroad, Oil, No. 43.....⅌ doz 8.00
Guarded, Oil and Candle, No. 25.....⅌ doz 3.50
Triangular.....⅌ doz 4.00
Hurricane.....dis 20 %
Lead.—Sheet.....⅌ ℔ 6 c
Pipe.....⅌ ℔ 5½ c
Locks.—Norwalk Lock Co. (reduced list)..dis 50&10 %
Eagle Cabinet.....dis 25 %
" Trunk.....dis 25 %
W. Wilcox & Co., Padlocks.....dis 33⅓&5 %
American Lock Co.'s Steel Key.....dis 33⅓ %
Metallic Sieves.—Mann's Patent.....dis 33⅓ %
Manure Forks.—W. C. & Co.....dis 50&10 %
Mattocks.—K. P. & Co., Long Cutter.....⅌ doz $9.00
K. P. & Co., Short Cutter.....⅌ doz 8.50
" Pick ".....⅌ doz 9.00
Measuring Tapes.—Eddy's.....dis 20 %
Meat Cutters.—Miles' Challenge.....dis 30 %
Hale's.....dis 50 %
American.....dis 25 %
Money Drawers.—Tucker's Alarm.....⅌ doz $22.50
Mouse Traps.—Delusion.....⅌ doz 2.00
Nails.....⅌ keg, rates 2.75
Oilers.—Zinc and Tin.....dis 50 %
Brass and Copper.....dis 50 %
Ox Bows.—Extra finished and varnished.....dis 10 %
1½ in., ⅌ doz. pair..$5.75 | 2 in., ⅌ doz. pair.....$9.00
1¾ in., " " .. 8.00 | 2½ " ".....11.00
Padlocks.—W. Wilcox & Co.'s.....dis 33⅓&5 %
Miller's Brass.....⅌ doz $9.00
Picks.—K. P. & Co., Adze Eye, 5 to 6 ℔.....⅌ doz 6.50
" " 6 to 7 ℔.....⅌ doz 7.00
Planes.—Greenfield Tool Co.....dis 35 %
N. Y. Tool Co.....dis 40 %
English Iron.....dis 30 %
Bailey's.....dis 25&10 %
Plated Ware.—Rogers & Bro.....dis 40&5 %
Pliers.—Vom Cleff & Co.'s.....Gold lis 5 %
Button's Wire Pliers.....dis 33⅓ %
Plumb & Levels.—Stanley, R. & L. Co..dis 60&10 %
Pocket Knives.
American Shear Co.'s.....dis 33⅓&10 %
Potato Diggers.
W. C. & Co. reduced list.....dis 5&10 %
Pulleys.
Acme or Excelsior, 1¾ in.....per doz 18c
" " 2 in.....21c
Pulley Blocks.....dis 40 %
Pumps.—Union Manufacturing Co.
Iron Cistern.....dis 50 %
" Pitcher Spout.....dis 50 %
Copper.....dis 30 %
Rivets.—Black.....dis 50 %
Carriage in 10 ℔ papers.....dis 35 %
Copper.....dis 50 %
Razor Strops.—Torrey's.....Full line
Rules.—Stanley.....Boxwood, dis 70&10 %
".....Ivory dis 60&10 %
Sadirons.—Common.....⅌ ℔ 2¾c
Laundry.....⅌ ℔ 5c
Tailor's Geese.....⅌ ℔ 5c
Enterprise, "Potts".....dis 33⅓&10 %
Sash Locks.—King & Hutchinson's, new list.dis 40 %
Hopkins & Dickinson's.....dis 40 %
Sandpaper.—Baeder & Adamson.....dis 25 %
M. B. & D.....dis 25&5 %
Sash Weights.—Patent Eye.....⅌ ℔ 1¼c
Saws.—Hand Saws, Disston's.....dis 20 %
Wheeler & Clemson.....dis 30
Cross-Cut Saws.
W. M. & C., Common Tooth, "o.....⅌ foot 35c
" Champion ".....⅌ foot 35c
Disston's, Common ".....⅌ foot 44c
" Gt. American ".....⅌ foot 44c
Boynton's Lightning ".....⅌ foot 45c
M. B. & D., Hand Saws.....dis 40 %
W. M. & Co.'s, Circular Saws.....dis 40 %
Saw Setts.—Spring Lever.....⅌ doz $10.00
Saw Blades.—Disston.....dis 20 %
W. M. & C.....dis 10 %
Welch & Griffith, Extra.....⅌ doz $8.40
" " No. 2.....⅌ doz 7.00
Scales.—Fairbanks.....dis 25 %
Howe.....dis 25 %
Screws.—Aiken's Flat-Head Iron.....dis 60 %
American Flat-Head Iron.....dis 60 %
" " Brass.....dis 45 %
" Round-Head ".....dis 30 %
" " Iron.....dis 45 %
Grilley " Nickel-plated Piano..dis 35&5 %
" " Common..dis 50 %
Shaves.—Kimball's.....⅌ inch 7½c
Watrous.....dis 15 %
Shears.—American Shear Co.....dis 75 %
Shot.—Tatham's.....⅌ ℔ 6½c
Shovels.—O. Ames.....dis 20 %
O. Ames, other brands.....dis 20 %
M. B. & D.....dis 20 %
Oxford, Birmingham Pattern.....dis 45 %
Snow Shovels.—Malleable tips.....⅌ doz $5.00
Skates.—Union.....dis 25 %
Acme.....dis 20 %
Spoons.—Tinned Iron.....dis 40 %
Britannia.....dis 50 %
Rogers' A No. 1.....dis 40&5 %
Stock and Dies.—King's.....dis 10&5 %
Tacks.—A. Field & Son's.....dis 50&10 %
Pittsfield.....dis 50&10 %
Traps.—Oneida, Genuine.....dis 33⅓ %
Oneida, Imitation, H. & N.....dis 50&10 %
Blake's.....dis 50&10 %
Tree Scrapers.—No. 1.....⅌ doz. $2.00
No. 2.....⅌ doz 3.00
No. 3.....⅌ doz 4.00
Vises.—Simpson's Adjustable.....dis 25&10 %
Howard Vise Co.....dis 33⅓ %
P. L. & Co., Solid Blacksmiths' new list.....dis 10 %
Weather Strips.—Packer's.....⅌ doz $4.50
Browne's Flexible Rubber.....dis 30 %
In 20 feet boxes; No. 1, ½ in. wide, ⅌ yard, 10c.; No. 2, ⅝ in., 15c.; No. 3, ¾ in., 20c.; No. 4, 1 in., 25c.
Valentine's Felt Moulding.....dis 30 %
Black Walnut Spring Weather Strips.....⅌ doz. $3.00
Window Springs.....dis 20 %
Babcock's No. 3.....⅌ gross $6.25
" " 4.....⅌ gross 4.15
Wire Goods.—Gate Hooks and Eyes, &c., new list.....dis 35&10 %
Wrenches.—A. G. Coe's.....dis 65 %
Girard Mfg. Co.....dis 65 %
Girard Agl.....dis 70 %
Wringers.—Universal, No. 2.....⅌ doz $64.00
Universal, No. 2½.....⅌ doz 60.00
Novelty, No. 10.....⅌ doz 60.00
" No. 2.....⅌ doz 63.00
" No. 22.....⅌ doz 67.50
Excelsior, No. A.....⅌ doz 78.00
" No. B.....⅌ doz 86.00
" No. CC.....⅌ doz 108.00
Novelty Set Tub, E.....⅌ doz 6.00
Eureka.....⅌ doz 54.00
Keystone, Wood Frame No. 1½.....⅌ doz 51.00
" Iron Frame No. 2½.....⅌ doz 51.00
Peerless...⅌ doz. No. 2½, 60.00; No. 2, 63.00; No. 3, 71.00
Unique, No. 1.....⅌ doz 54.00
Zinc.....⅌ ℔ 8¼c
Withington, Cooley & Co.—Hoes, Rakes, Forks, &c. dis 50&10 %. Special rate for Export.

St. Louis Metal Market.

(Corrected Weekly by Messrs. R. Sellew & Co.)

Tin Plate.

		DX, 12½x17, B. Char..	$9.25
IC, 10x14, Best Char..	$7.25	DXX, 12½x17, " ..	11.25
IX, 10x14, " ..	9.25	DXXX, 12½x17, " ..	13.25
IC, 12x12, " ..	7.25	DXXXX, 12½x17, " ..	15.25
IX, 12x12, " ..	9.25	IC, 20x28, " ..	27.00
IC, 14x20, " ..	7.25	IX, 20x28, " ..	23.00
IX, 14x20, " ..	9.25	IXX, 20x28, " ..	25.00
IXX, 14x20, " ..	11.25	IXXX, 20x28, " ..	30.00
IXXX, 14x20, " ..	13.25	IC, 14x20, Best Roof..	6.7
IXXXX, 14x20, B.Char	15.25	IX, 14x20, "	8.7
IC, 12x24, " ..	7.50	IC, 20x27, "	13.75
IX, 12x24, " ..	9.50	IX, 20x28, "	17.75
IC, 14x14, " ..	13.25	IC, 10x14, Best Coke..	6.75
IX, 14x14, " ..	15.75	IC, 14x20, "	6.75
IXX, 14x14, " ..	18.25	IC, 10x20, "	9.75
DC, 12½x17, " ..	7.25	Pr box 225 lb's Safe Tin	6.75

Sheet Iron.	Com'n.	St. L. U. Sm'th.	D. Ref'd Sm'th.	Juni'a. Sm'th.
No. 14 to 16	3.40c	4.20c	6.20c	7.20c
No. 18 to 20	3.50c	4.20c	6.20c	7.20c
No. 22 to 24	3.50c	4.30c	6.30c	7.30c
No. 26	3.60c	4.40c	6.50c	7.50c
No. 27	3.70c	4.50c	6.70c	7.70c

Genuine Russia Iron.
Perfect—No. 9, 10, 11, 12.....⅌ ℔, 13c
No. 1 Stained—No. 9, 10, 11, 12.....⅌ ℔, 12c
Tare 22 lbs. to Bdle. For less than Bdle. add ½c ⅌ ℔.
Patent Planished Iron.
No. 24 to 27, A quality.....⅌ ℔, 10½c
No. 24 to 27, B ".....⅌ ℔, 9½c
For less than Bdle, add ½c ⅌ ℔.
Galvanized Sheet Iron.
Juniata, or 1st quality, discount for full bundles..35 %

Block Tin.	Engl. Ref'd, Large Pig..18c
Banca, Large Pigs.....22c	Eng. Ref'd, Small.....19c
Straits, Large Pigs.....18c	Bar.....20c
Solder.	
R. S. & Co.'s Extra Half and Half.....⅌ ℔ 13c	cases, no charge for packing.....12½c
R. S. & Co.'s Extra Half and Half, in 100 ℔	No. 1, in Bars.....10½c
	Spelter Solder.....24 c
Pig Lead.—Pigs.....5c	In Bars.....6c

Antimony.....14c
Bismuth.....$2.50
Nickel.....1.75
Crucibles.—Dixon's.....⅌ No., 4c
Babbit Metal.
No. 1.....⅌ ℔, 16c | No. 3.....⅌ ℔, 9c
No. 2..... " 12c | No. 4..... " 6c
Copper.
Brazier's, 30x60, 14 to 100 ℔, Sheets.....24c
" 30x60, 10, 11 & 12 ℔, ".....[illegible]
" 30x60, 8 and 9 ℔, ".....28c
" 30x60, 6 and 7 ℔, ".....32c
Tinned, 14x48, 14 and 16 oz.....25c
Planished, 14x48, 14 and 16 oz.....33c
" Boiler Sizes, 14 and 16 oz.....35c
Gutter Copper, 20 and 24x72, 10, 11 & 12 ℔, Sheets.....26c
" 14 ℔, Sheets.....24c
Reservoir Copper, 16x60 and 18x60.....26c
Bar Copper, Square and Round, ⅜ to 1½ inch.....24c
" " " ⅝ inch.....24c
Copper Bottoms.....28c
Metallic Bottoms.....15c
Soldering Coppers.....26c
Brass.
Roll, No. 10 to 28, 12 in. in width.....25c
" 30, 12 in. in width.....26c
" 32, 16 in. ".....32c
" 34, 16 in. ".....33c
" 36, 16 in. ".....34c
Platers, No. 40, 6 in. ".....40c
Discount, per cent.

Brass and Copper Wire.

	Brass.	Copper.		Brass.	Copper.
No. 0 to 20	28c	38c	No. 24	35c	45c
No. 21	31c	41c	No. 25	38c	48c
No. 22	32c	42c	No. 26	40c	50c
No. 23	33c	43c	No. 27	43c	53

Brass Spring Wire, 2c ⅌ ℔ advance.
Discount 10 per cent.
Brass Tubing.
Plain ⅛ to 3 inch.....38c | 5-16 inch.....[illegible]
⅛ inch.....38c | ¼ ".....65
Copper Rivets and Burs.....dis 50
Brass Kettles, 8 to 13 inches.....⅌ ℔, 25c
" all sizes over 13 inches..... " 40c
Sheet Zinc.—600 lb. cask..... " 7¾
250 lb. cask, 8c.; 100 lb. cask..... " 8¼c
Sheet..... " 8½c
Wire.—Iron, Bright Market.....dis 50 %
Iron, Coppered Market.....dis 45 %
Fence, Nos. 8 and 9.....⅌ ℔ 3.4c
Trellis, Nos. 10 and 11..... " 4¼c
" No. 12..... " 4¾c
Hay Baling, Charcoal, No. 10 and 11..... " 5 c
" " No. 12..... " 5¼c
Broom, Tinned, Nos. 18 to 22..... " 9 c
Fence Staples.....⅌ keg, 4½c; per lb, 4¾c
Iron Rivets.—Black, papered.....dis %
Tinned, papered.....dis %
In bulk.....3-16 ¼ 5-16 ⅜ in diam.
8.4c 7.8c 7.5c 6.8c ⅌ ℔
Tacks.—New Hardware list.....dis 50 %
Sad Irons.....⅌ ℔, 3¼c
Enameled Kettles.—Standard Mfg. Co.....dis 55 %
Enameled Sauce Pans.—Standard Mfg. Co.dis 40 %
Enameled Boilers.—Standard Mfg. Co.....dis 40 %
Dripping Pans.—Smooth Iron.....⅌ ℔ 8 c
Fluters.—Geneva.....per doz, $12.00
Shepard..... " 12.00
Monroe..... " 11.50
Stove Polish.—Dixon's.....per gross 5.50
Gem..... " 4.00
Standard..... " 3.75
Coffee Mills.—Parker's.....dis 25 %
Granite Iron Ware.....dis 30 %

Machinery, &c.

THE JUDSON GOVERNOR.

It is a common method to advertise Governors *without cost*, unless satisfactory to the customer, and then charge *High Prices* for doing what any good Governor will do. Various Governors inferior to the "Judson" are sold in this way, operating well enough for three months, to insure collection of the pay, but becoming useless after a year's wear—their construction lacking durability. The Judson Governor is guaranteed to be not only the best Regulator of Steam Engines, but also the most durable Governor made. Parties in buying other Governors should stipulate that their durability be guaranteed, and should also take care that they do not, for much inferior Governors, pay higher prices than those shown in the accompanying list. We guarantee the Judson Governor will do all any other Governor can do, and in accuracy and durability—the main essentials—we guarantee it shall do more.

Reduced Price List,

OCTOBER 15, 1878.

☞ For dimensions of Governor, see Illustrated Price List.

THE JUDSON PATENT

Improved Steam Governor.

Size, Inch.	Plain.	Bright Finished.	Extra for Spe'd'r	Stop Valve.
½	$15.00	$17.00	$1.90	....
¾	16.00	18.00	1.90	....
1	18.00	20.00	2.00	....
1¼	20.00	23.00	2.25	....
1½	23.00	27.00	2.50	$6.00
2	27.00	31.00	2.75	7.50
2¼	32.00	37.00	3.25	9.00
2½	36.00	41.00	3.50	11.00
2¾	40.00	46.00	3.75	12.00
3	45.00	52.00	4.25	14.00
3½	54.00	62.00	4.50	17.00
4	64.00	73.00	5.00	21.00
4½	74.00	84.00	5.50	25.00
5	84.00	95.00	6.00	31.00
5½	97.00	109.00	6.50	37.00
6	112.00	125.00	7.00	42.00
7	132.00	146.00	8.00	50.00
8	160.00	176.00	9.00	60.00
9	180.00	198.00	10.00	75.00
10	200.00	220.00	12.00	....

No Charge for Boxing or Cartage.

JUNIUS JUDSON & SON, Rochester, N. Y.

HARTFORD STEAM BOILER INSPECTION AND INSURANCE CO.

Issues Policies of Insurance after a careful inspection of the Boilers

COVERING ALL LOSS OR DAMAGE TO

Boilers, Buildings and Machinery,

ARISING FROM

STEAM BOILER EXPLOSIONS.

The Business of the Company includes all kinds of STEAM BOILERS.

Full information concerning the plan of the Company's operations can be obtained at the

COMPANY'S OFFICE, HARTFORD, CONN.,

or at any Agency.

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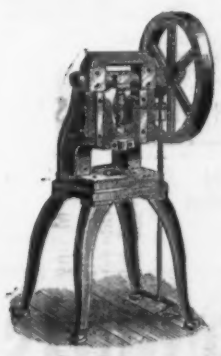
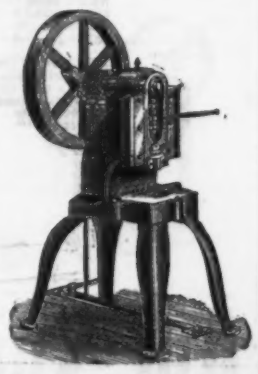
NELSON HOLLISTER, of State Bank, Hartford.
D. R. SMITH, Pres't Springfield Fire & Marine Ins. Co

A. H. MERRIMAN,

Patent Power

PUNCHING PRESSES.



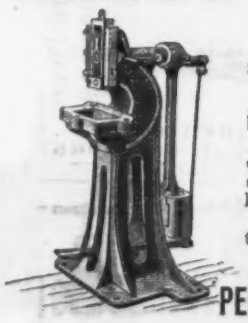


WEST MERIDEN,

CONNECTICUT.

ASTONISHING POWER

in FOOT and HAND PRESSES.



Punching, by foot, *3-4* hole in *5-16* iron 6 inches from edge.

Smaller sizes punch, by foot, *3-8* x *1-4*, and *1* inch by *1-8*, as rapidly as by power presses, at one-half the cost.

Our largest hand machines punch, easily, *1* inch hole in *3-8* iron, and shear bar *3-4* x *2* inches at a cut, any length.

All our machines can be seen in operation at our store,

52 Dey St., New York.

PEERLESS PUNCH and SHEAR CO.

CUYAHOGA WORKS

Manufactures

LAND

AND

Marine Engines,

BLAST FURNACE

Machinery,

STEAM

Hammers

Send for Circulars.

Cleveland, Ohio, U. S. A.

LOVEGROVE & CO.,

PHILADELPHIA, PA.,

MANUFACTURERS OF

BOILERS & ENGINES, ALL SIZES.

1-HORSE ENGINE AND BOILER, $150; 2-HORSE, $175; 3-HORSE, $200; 4-HORSE, $300; 5-HORSE, $375; 6-HORSE, $400; 8-HORSE, $425.

WARRANTED THE BEST. SEND FOR CIRCULAR.

Machinery, &c.

WILLIAM SELLERS & CO.,

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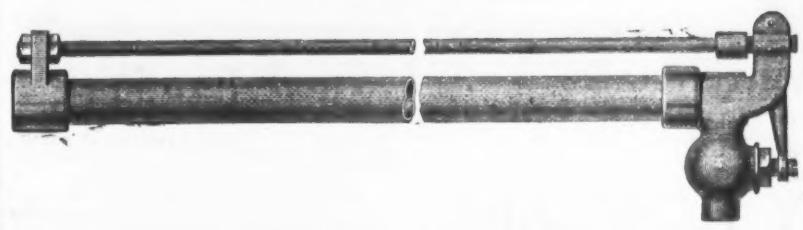

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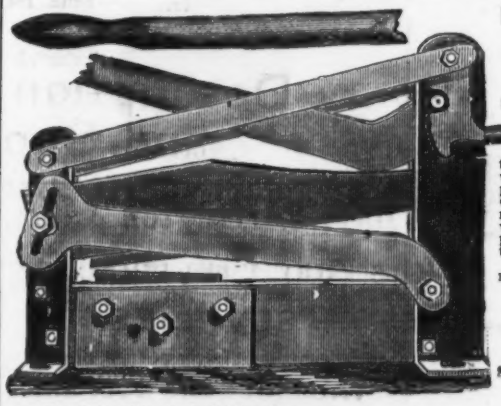

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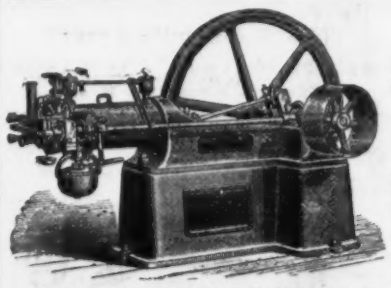

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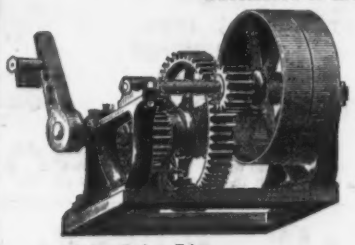

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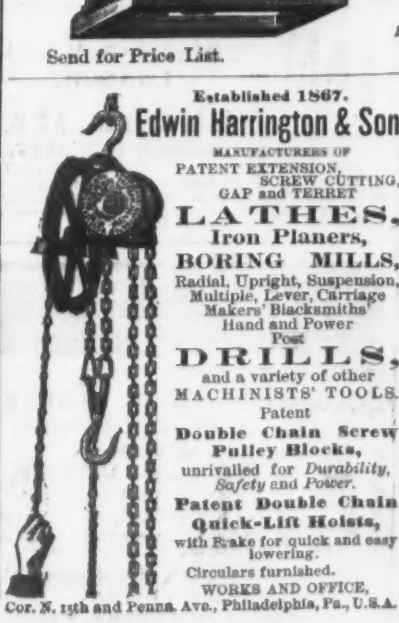

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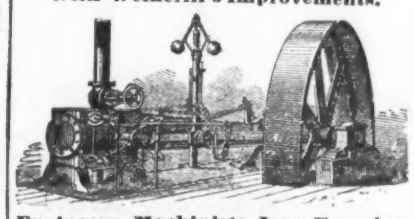

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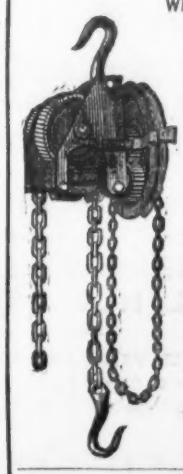

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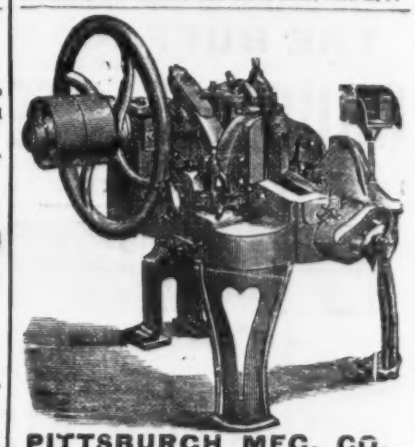

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